United States Department of Agriculture

Natural Resources Conservation Service



# Washington Water Supply Outlook Report May 1, 2004

# Water Supply Outlook Reports
## and
## Federal - State – Private Cooperative Snow Surveys

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### *How forecasts are made*

Most of the annual streamflow in the western United States originates as snowfall that has accumulated in the mountains during the winter and early spring. As the snowpack accumulates, hydrologists estimate the runoff that will occur when it melts. Measurements of snow water equivalent at selected manual snow courses and automated SNOTEL sites, along with precipitation, antecedent streamflow, and indices of the El Niño / Southern Oscillation are used in computerized statistical and simulation models to prepare runoff forecasts. These forecasts are coordinated between hydrologists in the Natural Resources Conservation Service and the National Weather Service. Unless otherwise specified, all forecasts are for flows that would occur naturally without any upstream influences.

Forecasts of any kind, of course, are not perfect. Streamflow forecast uncertainty arises from three primary sources: (1) uncertain knowledge of future weather conditions, (2) uncertainty in the forecasting procedure, and (3) errors in the data. The forecast, therefore, must be interpreted not as a single value but rather as a range of values with specific probabilities of occurrence. The middle of the range is expressed by the 50% exceedance probability forecast, for which there is a 50% chance that the actual flow will be above, and a 50% chance that the actual flow will be below, this value. To describe the expected range around this 50% value, four other forecasts are provided, two smaller values (90% and 70% exceedance probability) and two larger values (30%, and 10% exceedance probability). For example, there is a 90% chance that the actual flow will be more than the 90% exceedance probability forecast. The others can be interpreted similarly.

The wider the spread among these values, the more uncertain the forecast. As the season progresses, forecasts become more accurate, primarily because a greater portion of the future weather conditions become known; this is reflected by a narrowing of the range around the 50% exceedance probability forecast. Users should take this uncertainty into consideration when making operational decisions by selecting forecasts corresponding to the level of risk they are willing to assume about the amount of water to be expected. If users anticipate receiving a lesser supply of water, or if they wish to increase their chances of having an adequate supply of water for their operations, they may want to base their decisions on the 90% or 70% exceedance probability forecasts, or something in between. On the other hand, if users are concerned about receiving too much water (for example, threat of flooding), they may want to base their decisions on the 30% or 10% exceedance probability forecasts, or something in between. Regardless of the forecast value users choose for operations, they should be prepared to deal with either more or less water. (Users should remember that even if the 90% exceedance probability forecast is used, there is still a 10% chance of receiving less than this amount.) By using the exceedance probability information, users can easily determine the chances of receiving more or less water.

# Washington
# Water Supply Outlook

## May 2004

### General Outlook

Washington continued to experience warm and dry conditions throughout the month of April. These conditions have expedited normal snowmelt by as much as two months at mid elevations and a month at higher locations. Approximately 37% of the 59 SNOTEL sites had melted out by May 1st. Normally only a hand full of the very lowest elevation sites would be without snow cover on that date. Some relief may be forth coming during the month of May, according to weather forecast agencies, however it may be too little too late to recover from the past two months. Summer weather forecasts are also calling for the possibility of continued warm and dry conditions. Weekly drought monitor and text summary can be viewed at: http://www.wcc.nrcs.usda.gov/water/drought/wdr.pl

### Snowpack

The May 1 statewide SNOTEL readings dropped still further from last month to 63% of average. The Omak Creek Basin snow surveys reported the lowest readings at 29% of average. Readings in the Cowlitz River Basin reported the highest at 90% of average. Westside averages from SNOTEL, and May 1 snow surveys, included the North Puget Sound river basins with 50% of average, the Central Puget river basins with 52%, and the Lewis-Cowlitz basins with 89% of average. Snowpack along the east slopes of the Cascade Mountains included the Yakima area with 56% and the Wenatchee area with 62%. Snowpack in the Spokane River Basin was at 65% and the Walla Walla River Basin had 69% of average. Maximum snow cover in Washington was at Paradise Park SNOTEL near Mt. Rainer, with water content of 73.1 inches. This site would normally have 74.8 inches of water content on May 1. Last year at this time Paradise Park had 60.1 inches of snow water. The highest average in the state was Lynn Lake snow course in the Green River Basin with 123% of average.

| BASIN | PERCENT OF LAST YEAR | PERCENT OF AVERAGE |
|---|---|---|
| Spokane | 113 | 65 |
| Newman Lake | 81 | 38 |
| Pend Oreille | 68 | 61 |
| Okanogan | 76 | 56 |
| Methow | 73 | 55 |
| Similkameen | 60 | 32 |
| Wenatchee | 64 | 46 |
| Chelan | 64 | 53 |
| Stemilt - Colockum | 132 | 86 |
| Upper Yakima | 72 | 45 |
| Lower Yakima | 78 | 66 |
| Ahtanum Creek | 53 | 48 |
| Walla Walla | 87 | 69 |
| Lower Snake | 79 | 73 |
| Cowlitz | 111 | 90 |
| Lewis | 120 | 87 |
| White | 76 | 74 |
| Green | 110 | 63 |
| Cedar | 53 | 30 |
| Snoqualmie | 85 | 54 |
| Skykomish | 87 | 58 |
| Skagit | 74 | 56 |
| Baker | 57 | 50 |
| Nooksack | 97 | 45 |
| Olympic Peninsula | 73 | `61 |

## Precipitation

During the month of April, the National Weather Service and Natural Resources Conservation Service climate stations reported below average precipitation totals throughout Washington river basins. The highest percent of average in the state was at the Walla Walla Airport which reported 174% of average for a total of 2.56 inches. The average for this site is 1.47 inches for April. (High precipitation events at isolated stations most likely indicate thunder storm activity.) The wettest spot in the state was reported at Swift Creek SNOTEL in the Lewis River with an April accumulation of 7.80 inches and a total of 117.5 inches for the water-year. Basin averages for the water year dropped across the state, due to a very dry April, but mostly remain near to slightly below average.

| RIVER BASIN | APRIL PERCENT OF AVERAGE | WATER YEAR PERCENT OF AVERAGE |
|---|---|---|
| Spokane | 60 | 85 |
| Colville-Pend Oreille | 63 | 82 |
| Okanogan-Methow | 56 | 91 |
| Wenatchee-Chelan | 34 | 88 |
| Upper Yakima | 44 | 92 |
| Lower Yakima | 46 | 87 |
| Walla Walla | 87 | 94 |
| Lower Snake | 67 | 93 |
| Cowlitz-Lewis | 43 | 81 |
| White-Green-Puyallup | 39 | 86 |
| Central Puget Sound | 35 | 92 |
| North Puget Sound | 26 | 99 |
| Olympic Peninsula | 51 | 104 |

## Reservoir

Seasonal reservoir levels in Washington vary greatly due to specific watershed management practices required in preparation for irrigation season, fisheries management, power generation and flood control. Reservoir storage in the Upper Yakima Basin was 566,600-acre feet, 91% of average and 181,000-acre feet, 107% of average for Rimrock and Bumping Lakes. Storage at the Okanogan reservoirs was 67% of average for May 1. The power generation reservoirs included the following: Coeur d'Alene Lake, 156,500 acre feet, 63% of average and 66% of capacity; Chelan Lake, 341,800-acre feet, 129% of average and 51% of capacity; and the Skagit River reservoirs at 122% of average and 65% of capacity.

| BASIN | PERCENT OF CAPACITY | CURRENT STORAGE AS PERCENT OF AVERAGE |
|---|---|---|
| Spokane | 66 | 63 |
| Colville-Pend Oreille | N/A | N/A |
| Okanogan-Methow | 54 | 67 |
| Wenatchee-Chelan | 51 | 129 |
| Upper Yakima | 68 | 91 |
| Lower Yakima | 78 | 107 |
| North Puget Sound | 65 | 122 |

*For more information contact your local Natural Resources Conservation Service office.*

## Streamflow

May forecasts for May-September flows vary from 85% of average for Lewis River at Ariel to 37% of average for Salmon Creek near Conconully. May-September forecasts for some Western Washington streams include the Cedar River near Cedar Falls, 73%; Green River, 84%; and Skagit River, 77%. Some Eastern Washington streams include the Yakima River near Parker, 63%: Wenatchee River at Plain, 64%; and Spokane River near Post Falls, 62%. Volumetric forecasts are developed using current, historic and average snowpack, precipitation and streamflow data collected and coordinated by organizations cooperating with NRCS.

Statewide April streamflows varied from below to much above average. Many of the reported streamflow measurements are from regulated reservoir systems, therefore streamflow readings may not be indicative of actual peak snowmelt runoff. Non-regulated streams such as the Methow River at Peteros, show true flows from snowmelt caused by the above average temperatures during April. The Similkameen River bear Nighthawk had the highest reported flows with 194% of average. The Cowlitz River at Castle Rock with 67% of average was the lowest in the state.

| BASIN | PERCENT OF AVERAGE MOST PROBABLE FORECAST (50 PERCENT CHANCE OF EXCEEDENCE) |
|---|---|
| Spokane | 53-66 |
| Colville-Pend Oreille | 46-86 |
| Okanogan-Methow | 37-62 |
| Wenatchee-Chelan | 49-80 |
| Upper Yakima | 42-65 |
| Lower Yakima | 63-72 |
| Walla Walla | 63-71 |
| Lower Snake | 58-67 |
| Cowlitz-Lewis | 70-85 |
| White-Green-Puyallup | 84-86 |
| Central Puget Sound | 67-80 |
| North Puget Sound | 76-84 |
| Olympic Peninsula | 77-83 |

| STREAM | PERCENT OF AVERAGE APRIL STREAMFLOWS |
|---|---|
| Pend Oreille Below Box Canyon | 112 |
| Kettle at Laurier | 126 |
| Columbia at Birchbank | 130 |
| Spokane at Long Lake | 84 |
| Similkameen at Nighthawk | 194 |
| Okanogan at Tonasket | 131 |
| Methow at Pateros | 162 |
| Chelan at Chelan | 136 |
| Wenatchee at Pashastin | 133 |
| Yakima at Cle Elum | 114 |
| Yakima at Parker | 125 |
| Naches at Naches | 121 |
| Grande Ronde at Troy | 87 |
| Snake below Lower Granite Dam | 73 |
| SF Walla Walla near Milton Freewater | 149 |
| Columbia River at The Dalles | 97 |
| Lewis at Ariel | 72 |
| Cowlitz below Mayfield Dam | 79 |
| Skagit at Concrete | 98 |

*For more information contact your local Natural Resources Conservation Service office.*

# BASIN SUMMARY OF SNOW COURSE DATA

## MAY 2004

| SNOW COURSE | ELEVATION | DATE | SNOW DEPTH | WATER CONTENT | LAST YEAR | AVERAGE 1971-00 |
|---|---|---|---|---|---|---|
| ALPINE MEADOWS SNTL | 3500 | 5/01/04 | 78 | 38.9 | 26.4 | 45.8 |
| AMBROSE | 6480 | 4/30/04 | 13 | 4.3 | 14.1 | 11.1 |
| ASHLEY DIVIDE | 4820 | 4/27/04 | 0 | .0 | .0 | 1.1 |
| BADGER PASS SNOTEL | 6900 | 5/01/04 | 53 | 24.9 | 27.4 | 36.2 |
| BAREE CREEK | 5500 | 4/26/04 | 62 | 30.8 | 32.8 | 40.3 |
| BAREE MIDWAY | 4600 | 4/26/04 | 47 | 22.6 | 22.8 | 27.4 |
| BAREE TRAIL | 3800 | 4/26/04 | 0 | .0 | .0 | 1.3 |
| BARKER LAKES SNOTEL | 8250 | 5/01/04 | 36 | 12.7 | 17.7 | 16.2 |
| BARNES CREEK CAN. | 5320 | 4/30/04 | 30 | 13.3 | 20.9 | 19.7 |
| BASIN CREEK SNOTEL | 7180 | 5/01/04 | 27 | 9.0 | 9.3 | 10.0 |
| BASSOO PEAK | 5150 | 5/04/04 | 0 | .0 | .0 | 3.2 |
| BEAVER CREEK TRAIL | 2200 | 4/28/04 | 0 | .0 | .0 | 4.4 |
| BEAVER PASS | 3680 | 4/28/04 | 33 | 16.0 | 17.2 | 27.2 |
| BEAVER PASS SNOTEL | 3680 | 5/01/04 | 68 | 25.9 | 23.7 | -- |
| BERNE-MILL CREEK (d) | 3170 | 4/29/04 | 41 | 17.9 | 18.2 | 22.5 |
| BIG CREEK | 6750 | 4/30/04 | 69 | 33.6 | -- | 48.0 |
| BIG WHITE MTN CAN. | 5510 | 5/02/04 | 31 | 13.2 | 17.8 | 19.4 |
| BLACK MOUNTAIN | 7750 | 4/27/04 | 32 | 13.0 | 17.3 | 16.9 |
| BLACK PINE SNOTEL | 7100 | 5/01/04 | 1 | .9 | 11.2 | 11.0 |
| BLACKWALL PEAK CAN. | 6370 | 5/01/04 | --- | 23.0 | 26.9 | 34.9 |
| BLEWETT PASS#2SNOTEL | 4270 | 5/01/04 | 0 | .0 | .0 | 5.0 |
| BLUE LAKE | 5900 | 4/27/04 | 27 | 11.6 | 14.0 | 22.4 |
| BRENDA MINE CAN. | 4450 | 5/01/04 | --- | .0 | 4.6 | 9.3 |
| BROOKMERE CAN. | 3000 | 4/29/04 | 4 | 1.3 | .0 | 4.0 |
| BROWN TOP AM | 6000 | 4/28/04 | 64 | 28.3 | 55.2 | 62.1 |
| BRUSH CREEK TIMBER | 5000 | 4/27/04 | 0 | .0 | .0 | 3.6 |
| BULL MOUNTAIN | 6600 | 4/29/04 | 0 | .0 | .0 | 2.6 |
| BUMPING LAKE (NEW) | 3400 | 4/28/04 | 0 | .0 | 2.3 | 10.4 |
| BUMPING RIDGE SNOTEL | 4600 | 5/01/04 | 38 | 17.1 | 20.5 | 27.5 |
| BUNCHGRASS MDWSNOTEL | 5000 | 5/01/04 | --- | 16.4 | 30.1 | 28.6 |
| BURNT MOUNTAIN PIL | 4200 | 5/01/04 | 3 | 2.1 | 9.5 | -- |
| CARMI CAN. | 4100 | 5/01/04 | 0 | .0 | .0 | 1.1 |
| CHESSMAN RESERVOIR | 6200 | 4/27/04 | 0 | .0 | .0 | 1.7 |
| CHICKEN CREEK | 4060 | 4/27/04 | 10 | 4.3 | 5.2 | 5.4 |
| CHIWAUKUM G.S. | 2500 | 4/29/04 | 0 | .0 | .0 | 1.7 |
| COMBINATION SNOTEL | 5600 | 5/01/04 | 0 | .0 | .1 | 1.2 |
| COPPER BOTTOM SNOTEL | 5200 | 5/01/04 | 0 | .0 | 4.9 | 4.5 |
| COPPER MOUNTAIN | 7700 | 4/25/04 | 19 | 6.6 | 11.0 | 10.0 |
| CORRAL PASS SNOTEL | 6000 | 5/01/04 | --- | 34.5 | 34.9 | 35.3 |
| COTTONWOOD CREEK | 6400 | 4/27/04 | 15 | 6.1 | 7.7 | 7.3 |
| COUGAR MTN. SNOTEL | 3200 | 5/01/04 | 0 | .0 | 1.1 | 11.0 |
| COX VALLEY | 4500 | 4/30/04 | 53 | 26.6 | 28.0 | 37.1 |
| COYOTE HILL | 4200 | 4/29/04 | 0 | .0 | .0 | 2.6 |
| DALY CREEK SNOTEL | 5780 | 5/01/04 | 0 | .0 | 8.9 | 5.3 |
| DEER PARK | 5200 | 5/02/04 | 0 | .0 | 12.0 | 15.2 |
| DEVILS PARK | 5900 | 4/28/04 | 94 | 40.0 | 38.6 | 44.7 |
| DISCOVERY BASIN | 7050 | 4/26/04 | 13 | 5.0 | 13.4 | 9.4 |
| DIX HILL | 6400 | 5/02/04 | 0 | .0 | 1.5 | 3.8 |
| DOMMERIE FLATS | 2200 | 4/28/04 | 0 | .0 | .0 | -- |
| DUNGENESS SNOTEL | 4100 | 5/01/04 | 0 | .0 | .0 | -- |
| EAST FORK R.S. | 5400 | 4/29/04 | 0 | .0 | .0 | .7 |
| ELBOW LAKE SNOTEL | 3200 | 5/01/04 | 27 | 14.6 | 15.5 | 32.5 |
| EMERY CREEK SNOTEL | 4350 | 5/01/04 | 0 | .0 | 5.9 | 7.4 |
| ENDERBY CAN. | 5800 | 4/30/04 | 74 | 32.7 | 39.8 | 43.5 |
| ESPERON CK. UP CAN. | 5050 | 4/25/04 | 35 | 13.8 | 10.8 | 15.4 |
| FARRON CAN. | 4000 | 4/26/04 | 10 | 4.2 | 3.4 | 8.1 |
| FATTY CREEK | 5500 | 4/30/04 | 35 | 14.4 | 18.6 | 23.4 |
| FISH CREEK | 8000 | 5/01/04 | --- | 11.0E | 13.2 | 11.5 |
| FISH LAKE | 3370 | 4/28/04 | 18 | 9.6 | 14.9 | 23.1 |
| FISH LAKE SNOTEL | 3370 | 5/01/04 | 30 | 13.1 | 15.3 | 28.8 |
| FLATTOP MTN SNOTEL | 6300 | 5/01/04 | 85 | 37.2 | 43.1 | 46.7 |
| FLEECER RIDGE | 7500 | 4/29/04 | 2 | .6 | 9.1 | 8.7 |
| FOURTH OF JULY SUM | 3200 | 4/29/04 | 0 | .0 | -- | .3 |
| FREEZEOUT CK. TRAIL | 3500 | 4/29/04 | 1 | .4 | 1.9 | 6.4 |
| FROHNER MDWS SNOTEL | 6480 | 5/01/04 | 7 | 2.5 | 7.2 | 6.5 |
| GRASS MOUNTAIN #2 | 2900 | 4/28/04 | 0 | .0 | .0 | -- |
| GRAVE CRK SNOTEL | 4300 | 5/01/04 | 2 | .8 | 9.4 | 7.0 |
| GRAYSTOKE LAKE CAN. | 5500 | 4/28/04 | 35 | 11.3 | 11.5 | 16.2 |
| GREEN LAKE SNOTEL | 6000 | 5/01/04 | 42 | 17.1 | 20.2 | 24.6 |
| GREYBACK RES CAN. | 4700 | 4/29/04 | 10 | 3.1 | 4.1 | 7.0 |
| GRIFFIN CR DIVIDE | 5150 | 5/04/04 | 0 | .0 | .0 | 4.9 |
| GROUSE CAMP SNOTEL | 5380 | 5/01/04 | 9 | 3.3 | 15.9 | 11.1 |
| HAMILTON HILL CAN. | 4550 | 5/01/04 | 2 | .6 | 6.6 | 10.6 |
| HAND CREEK SNOTEL | 5030 | 5/01/04 | 0 | .0 | 1.7 | 6.8 |
| HARTS PASS SNOTEL | 6500 | 5/01/04 | 58 | 28.7 | 36.3 | 47.7 |
| HELL ROARING DIVIDE | 5770 | 4/27/04 | 52 | 24.0 | 22.3 | 29.0 |
| HERRIG JUNCTION | 4850 | 4/27/04 | 35 | 17.0 | 22.0 | 22.9 |
| HIGH RIDGE SNOTEL | 4980 | 5/01/04 | --- | 11.4 | 11.4 | 15.9 |
| HOLBROOK | 4530 | 5/01/04 | 0 | .0 | .0 | 1.2 |
| HOODOO BASIN SNOTEL | 6050 | 5/01/04 | 70 | 31.2 | 40.0 | 45.7 |
| HUCKLEBERRY SNOTEL | 2000 | 5/01/04 | 0 | .0 | .0 | -- |
| HUMBOLDT GLCH SNOTEL | 4250 | 5/01/04 | --- | .0 | .0 | 5.5 |
| HURRICANE | 4500 | 5/01/04 | --- | 11.0E | 12.5 | 17.9 |
| INTERGAARD | 6450 | 4/25/04 | 0 | .0 | 6.6 | 6.1 |
| ISINTOK LAKE CAN. | 5100 | 4/28/04 | 4 | 1.3 | 2.3 | 5.4 |
| JUNE LAKE SNOTEL | 3200 | 5/01/04 | 53 | 22.7 | 15.3 | 29.6 |
| KIT CARSON PASTURE | 4950 | 4/29/04 | 0 | .0 | -- | -- |
| KLESILKWA CAN. | 3450 | 5/01/04 | 0 | .0 | .0 | 4.8 |

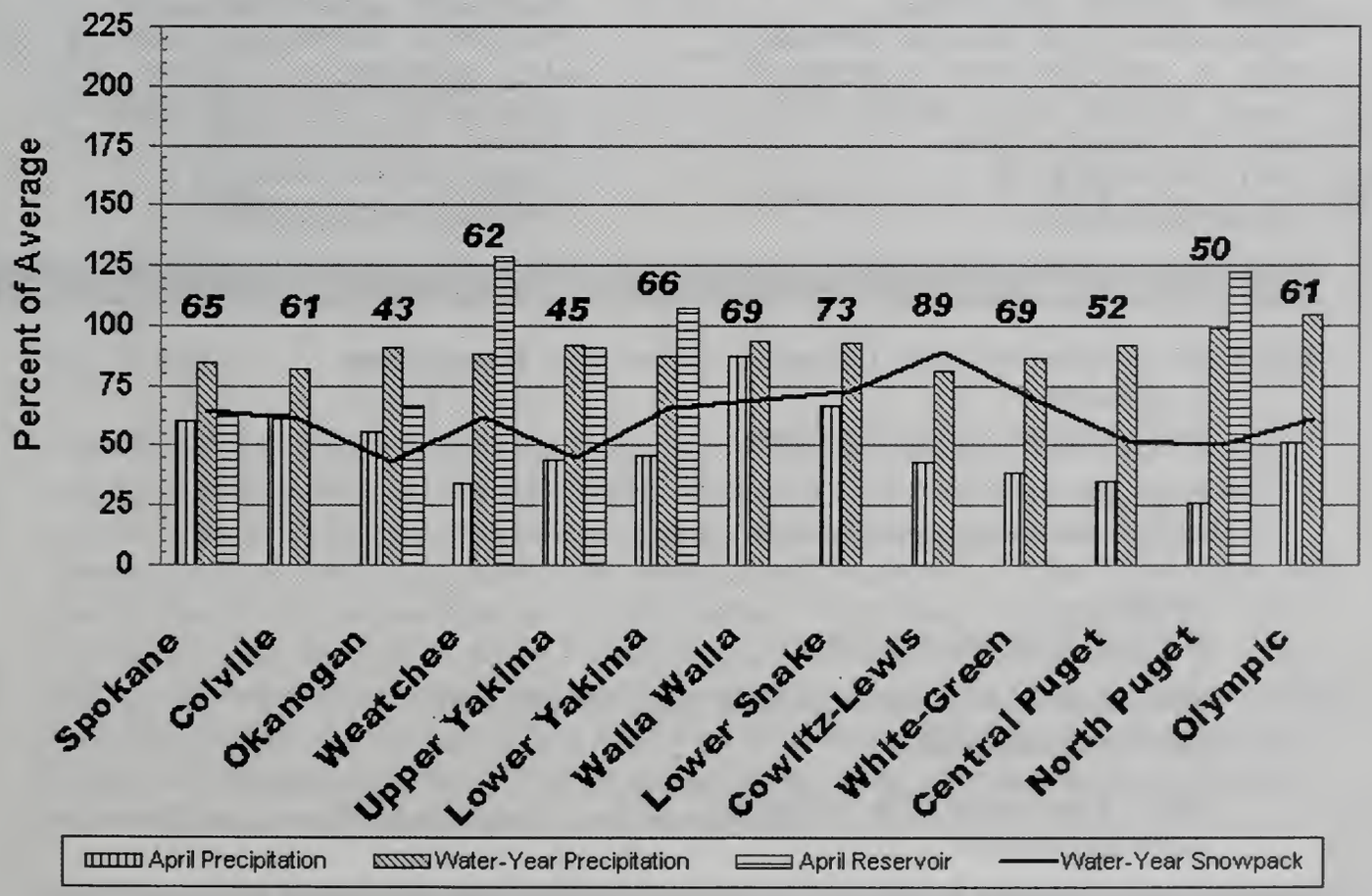
| SNOW COURSE | ELEVATION | DATE | SNOW DEPTH | WATER CONTENT | LAST YEAR | AVERAGE 1971-00 |
|---|---|---|---|---|---|---|
| KRAFT CREEK SNOTEL | 4750 | 5/01/04 | 0 | .0 | 2.4 | 5.2 |
| LESTER CREEK | 3100 | 4/28/04 | 30 | 13.5 | .0 | 16.6 |
| LIGHTNING LAKE CAN. | 3700 | 5/01/04 | 14 | 5.2 | 5.8 | 9.9 |
| LOGAN CREEK | 4300 | 4/27/04 | 0 | .0 | .0 | 1.7 |
| LOLO PASS SNOTEL | 5240 | 5/01/04 | 28 | 12.9 | 26.5 | 24.5 |
| LONE PINE SNOTEL | 3800 | 5/01/04 | --- | 36.1 | 27.2 | 34.2 |
| LOOKOUT SNOTEL | 5140 | 5/01/04 | 42 | 19.7 | 17.7 | 27.2 |
| LOST HORSE MTN CAN. | 6300 | 5/01/04 | 24 | 7.3 | 7.6 | 9.7 |
| LOST HORSE SNOTEL | 5000 | 5/01/04 | 0 | .0 | 12.0 | 10.7 |
| LOST LAKE SNOTEL | 6110 | 5/01/04 | --- | 38.6 | 43.9 | 59.7 |
| LOWER SANDS CREEK #2 | 3120 | 4/29/04 | 36 | 16.3 | .0 | 15.8 |
| LUBRECHT FOREST NO 3 | 5450 | 4/30/04 | 0 | .0 | .0 | 1.7 |
| LUBRECHT FOREST NO 4 | 4650 | 4/30/04 | 0 | .0 | .0 | .1 |
| LUBRECHT FOREST NO 6 | 4040 | 4/30/04 | 0 | .0 | .0 | .0 |
| LUBRECHT HYDROPLOT | 4200 | 4/30/04 | 0 | .0 | .0 | .1 |
| LUBRECHT SNOTEL | 4680 | 5/01/04 | 0 | .0 | .0 | .5 |
| LYMAN LAKE SNOTEL | 5900 | 5/01/04 | --- | 33.9 | 60.2 | 67.2 |
| LYNN LAKE | 4000 | 4/28/04 | 41 | 17.8 | 16.5 | 14.5 |
| MARIAS PASS | 5250 | 4/29/04 | 7 | 2.9 | 5.8 | 12.5 |
| MEADOWS CABIN | 1900 | 4/29/04 | 0 | .0 | .0 | 1.1 |
| MEADOWS PASS SNOTEL | 3240 | 5/01/04 | 1 | .0 | 7.5 | 10.8 |
| MERRITT | 2140 | 4/29/04 | 0 | .0 | .0 | 4.0 |
| M F NOOKSACK SNOTEL | 4980 | 5/01/04 | 119 | 67.5 | 61.3 | -- |
| MICA CREEK SNOTEL | 4750 | 5/01/04 | 16 | 8.4 | 8.8 | 15.3 |
| MINERAL CREEK | 4000 | 5/01/04 | 0 | .0 | 7.8 | 9.6 |
| MINERS RIDGE SNOTEL | 6200 | 5/01/04 | --- | 33.3 | 44.5 | 56.9 |
| MISSEZULA MTN CAN. | 5080 | 4/28/04 | 1 | .2 | 1.5 | 5.5 |
| MISSION CREEK CAN. | 5840 | 5/01/04 | --- | 20.2 | 20.1 | 21.3 |
| MONASHEE PASS CAN. | 4500 | 4/30/04 | --- | .1 | 11.3 | 11.4 |
| MORRISSEY RIDGE CAN. | 6100 | 5/01/04 | --- | 15.4 | 29.5 | 27.2 |
| MORSE LAKE SNOTEL | 5400 | 5/01/04 | --- | 34.2 | 55.8 | 57.0 |
| MOSES MTN SNOTEL | 4800 | 5/01/04 | 7 | 3.1 | 12.6 | 10.9 |
| MOSQUITO RDG SNOTEL | 5200 | 5/01/04 | --- | 26.9 | 25.8 | 32.2 |
| MOULTON RESERVOIR | 6850 | 5/01/04 | 0 | .0 | 5.5 | 3.5 |
| MOUNT CRAG SNOTEL | 4050 | 5/01/04 | 48 | 22.3 | 20.9 | 27.8 |
| MT. KOBAU CAN. | 5500 | 5/01/04 | 23 | 8.2 | 13.5 | 12.8 |
| MOWICH SNOTEL | 3150 | 5/01/04 | 0 | .0 | .0 | -- |
| MOUNT GARDNER SNOTEL | 2860 | 5/01/04 | --- | .0 | .0 | 4.8 |
| N.F. ELK CR SNOTEL | 6250 | 5/01/04 | 6 | 2.2 | 10.3 | 8.0 |
| NEVADA RIDGE SNOTEL | 7020 | 5/01/04 | 21 | 8.9 | 15.8 | 14.4 |
| NEW HOZOMEEN LAKE | 2800 | 4/28/04 | 0 | .0 | .0 | 3.9 |
| NEZ PERCE CMP SNOTEL | 5650 | 5/01/04 | 10 | 4.6 | 14.7 | 10.8 |
| NEZ PERCE PASS | 6570 | 4/29/04 | 15 | 5.5 | 17.0 | 14.2 |
| NOISY BASIN SNOTEL | 6040 | 5/01/04 | 80 | 34.2 | 37.0 | 43.8 |
| NORTH FORK JOCKO | 6330 | 4/30/04 | 56 | 27.0 | 34.4 | -- |
| OLALLIE MDWS SNOTEL | 3960 | 5/01/04 | 68 | 34.0E | 39.2 | 55.1 |
| OLALLIE MEADOWS | 3630 | 5/03/04 | 10 | 4.9 | 26.0 | 36.9 |
| OPHIR PARK | 7150 | 5/02/04 | 13 | 5.0 | 15.3 | 16.0 |
| PARADISE PARK SNOTEL | 5500 | 5/01/04 | --- | 73.1 | 60.1 | 74.8 |
| PARK CK RIDGE SNOTEL | 4600 | 5/01/04 | 34 | 19.0 | 32.4 | 39.8 |
| PETERSON MDW SNOTEL | 7200 | 5/01/04 | 22 | 7.6 | 15.1 | 11.0 |
| PIGTAIL PEAK SNOTEL | 5900 | 5/01/04 | 99 | 54.3 | 53.0 | 56.5 |
| PIKE CREEK SNOTEL | 5930 | 5/01/04 | 26 | 11.0 | 17.3 | 25.9 |
| PIPESTONE PASS | 7200 | 4/25/04 | 2 | .7 | 1.9 | 4.8 |
| POPE RIDGE SNOTEL | 3540 | 5/01/04 | 0 | .0 | 7.3 | 7.0 |
| POSTILL LAKE CAN. | 4200 | 5/01/04 | 7 | 2.8 | 4.2 | 5.3 |
| POTATO HILL SNOTEL | 4500 | 5/01/04 | --- | 15.3 | 20.8 | 18.9 |
| QUARTZ PEAK SNOTEL | 4700 | 5/01/04 | 16 | 5.7 | 7.0 | 14.9 |
| RAGGED RIDGE | 3330 | 4/28/04 | 0 | .0 | .0 | -- |
| RAINY PASS SNOTEL | 4780 | 5/01/04 | 51 | 23.6 | 34.2 | 43.2 |
| REX RIVER SNOTEL | 1900 | 5/01/04 | 12 | 5.7 | 11.9 | 19.0 |
| ROCKER PEAK SNOTEL | 8000 | 5/01/04 | 42 | 14.5 | 17.5 | 16.6 |
| ROUND TOP MTN | 4020 | 4/28/04 | 0 | .0 | .0 | -- |
| SADDLE MTN SNOTEL | 7900 | 5/01/04 | 47 | 19.5 | 28.9 | 26.5 |
| SALMON MDWS SNOTEL | 4500 | 5/01/04 | 0 | .0 | 1.3 | 3.9 |
| SASSE RIDGE SNOTEL | 4200 | 5/01/04 | 44 | 18.9 | 13.2 | 32.3 |
| SAVAGE PASS SNOTEL | 6170 | 5/01/04 | 48 | 14.8 | 27.1 | 25.2 |
| SAWMILL RIDGE | 4700 | 4/28/04 | 33 | 14.9 | 20.8 | 32.8 |
| SENTINEL BT SNOTEL | 4920 | 5/01/04 | 0 | .0 | -- | -- |
| SHEEP CANYON SNOTEL | 4050 | 5/01/04 | --- | 27.1 | 16.0 | 32.0 |
| SHERWIN SNOTEL | 3200 | 5/01/04 | --- | .0 | .0 | 3.3 |
| SILVER STAR MTN CAN. | 5600 | 4/30/04 | 50 | 22.2 | 26.2 | 30.1 |
| SKALKAHO SNOTEL | 7260 | 5/01/04 | 42 | 17.6 | 27.2 | 25.4 |
| SKITWISH RIDGE | 5110 | 4/29/04 | 50 | 23.8 | 15.3 | 25.8 |
| SKOOKUM CREEK SNOTEL | 3920 | 5/01/04 | 1 | .4 | 4.5 | 14.6 |
| SLIDE ROCK MOUNTAIN | 7100 | 4/25/04 | 22 | 9.6 | 15.5 | 15.7 |
| SOURDOUGH GULCH SNTL | 4000 | 5/01/04 | 0 | .0 | .0 | -- |
| SPENCER MDW SNOTEL | 3400 | 5/01/04 | --- | 14.8 | 11.4 | 21.8 |
| SPIRIT LAKE SNOTEL | 3100 | 5/01/04 | --- | .0 | .0 | -- |
| SPOTTED BEAR MTN. | 7000 | 4/27/04 | 0 | .0 | 4.4 | 7.6 |
| SPRUCE SPRINGS SNTL | 5700 | 5/01/04 | 0 | .0 | 4.8 | -- |
| STAHL PEAK SNOTEL | 6030 | 5/01/04 | 69 | 30.0 | 36.1 | 37.1 |
| STAMPEDE PASS SNOTEL | 3860 | 5/01/04 | 53 | 27.5 | 28.7 | 42.7 |
| STEMPLE PASS | 6600 | 4/27/04 | 9 | 3.2 | 5.4 | 9.3 |
| STEVENS PASS SNOTEL | 4070 | 5/01/04 | 37 | 14.5 | 25.8 | 35.2 |
| STEVENS PASS SAND SD | 3700 | 4/29/04 | 23 | 9.8 | 20.6 | 27.5 |
| STORM LAKE | 7780 | 4/26/04 | 27 | 10.0 | 15.7 | 14.3 |
| STRYKER BASIN | 6180 | 4/27/04 | 56 | 26.6 | 30.7 | 32.6 |

| SNOW COURSE | ELEVATION | DATE | SNOW DEPTH | WATER CONTENT | LAST YEAR | AVERAGE 1971-00 |
|---|---|---|---|---|---|---|
| SUMMERLAND RES CAN. | 4200 | 4/28/04 | 1 | .1 | .0 | 5.1 |
| SUNSET SNOTEL | 5540 | 5/01/04 | --- | 9.8 | 13.6 | 28.7 |
| SURPRISE LKS SNOTEL | 4250 | 5/01/04 | --- | 36.8 | 38.1 | 41.8 |
| SWAMP CREEK SNOTEL | 4000 | 5/01/04 | 0 | .0 | 3.4 | -- |
| TEN MILE LOWER | 6600 | 4/27/04 | 0 | .0 | 1.7 | 4.5 |
| TEN MILE MIDDLE | 6800 | 4/27/04 | 20 | 6.3 | 9.4 | 11.2 |
| THUNDER BASIN SNOTEL | 4200 | 5/01/04 | --- | 13.4 | 25.7 | 27.4 |
| THUNDER BASIN | 4200 | 5/01/04 | --- | 12.0E | 18.0 | 21.2 |
| THOMPSON CREEK | 2500 | 4/28/04 | 0 | .0 | .0 | -- |
| TINKHAM CREEK SNOTEL | 3000 | 5/01/04 | --- | 10.7 | 11.6 | 20.0 |
| TOUCHET SNOTEL | 5530 | 5/01/04 | 41 | 17.7 | 22.0 | 26.2 |
| TRINKUS LAKE | 6100 | 4/27/04 | 60 | 31.0 | 32.4 | 40.8 |
| TROUGH #2 SNOTEL | 5310 | 5/01/04 | 0 | .0 | 4.2 | 4.3 |
| TRUMAN CREEK | 4060 | 4/27/04 | 0 | .0 | .0 | .1 |
| TUNNEL AVENUE | 2450 | 4/29/04 | 0 | .0 | 2.2 | 12.0 |

| SNOW COURSE | ELEVATION | DATE | SNOW DEPTH | WATER CONTENT | LAST YEAR | AVERAGE 1971-00 |
|---|---|---|---|---|---|---|
| TV MOUNTAIN | 6800 | 4/30/04 | 24 | 9.0 | 14.3 | 17.4 |
| TWELVEMILE SNOTEL | 5600 | 5/01/04 | 0 | .0 | 6.8 | 8.8 |
| TWIN CAMP | 4100 | 4/28/04 | 26 | 11.4 | 12.5 | 20.3 |
| TWIN CREEKS | 3580 | 4/27/04 | 0 | .0 | .0 | 1.7 |
| TWIN LAKES SNOTEL | 6400 | 5/01/04 | 53 | 28.6 | 41.5 | 38.5 |
| UPPER HOLLAND LAKE | 6200 | 4/27/04 | 55 | 26.8 | 33.8 | 33.5 |
| UPPER WHEELER SNOTEL | 4400 | 5/01/04 | 12 | 5.4 | 4.1 | 6.3 |
| VASEUX CREEK CAN. | 4250 | 4/29/04 | 0 | .0 | .0 | 2.3 |
| WARM SPRINGS SNOTEL | 7800 | 5/01/04 | 52 | 20.7 | 28.0 | 23.7 |
| WATSON LAKES AM | 4500 | 5/01/04 | --- | 32.0E | 56.0 | 64.0 |
| WATERHOLE SNOTEL | 5000 | 5/01/04 | 62 | 20.2 | 36.5 | -- |
| WEASEL DIVIDE | 5450 | 4/29/04 | 44 | 21.7 | 25.8 | 32.7 |
| WELLS CREEK SNOTEL | 4200 | 5/01/04 | 47 | 21.3 | 21.7 | -- |
| WHITE PASS ES SNOTEL | 4500 | 5/01/04 | 33 | 13.0 | 15.2 | 21.4 |
| WHITE ROCKS MTN CAN. | 7200 | 4/30/04 | 35 | 14.8 | 13.0 | 21.0 |

## May 1, 2004 - Snowpack, Precipitation and Reservoir Conditions at a Glance

(Water Year = October 1, 2003 - Current Date)



USDA NRCS
Natural Resources Conservation Service

# Washington State
# Snow, Water and Climate Services

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## Helpful Internet Addresses

**NRCS Snow Survey and Climate Services Homepages**

Washington:
http://www.wa.nrcs.usda.gov/snow/snow

Oregon:
http://www.or.nrcs.usda.gov/snow/snow

Idaho:
http://www.id.nrcs.usda.gov/snow

National Water and Climate Center (NWCC):
http://www.wcc.nrcs.usda.gov

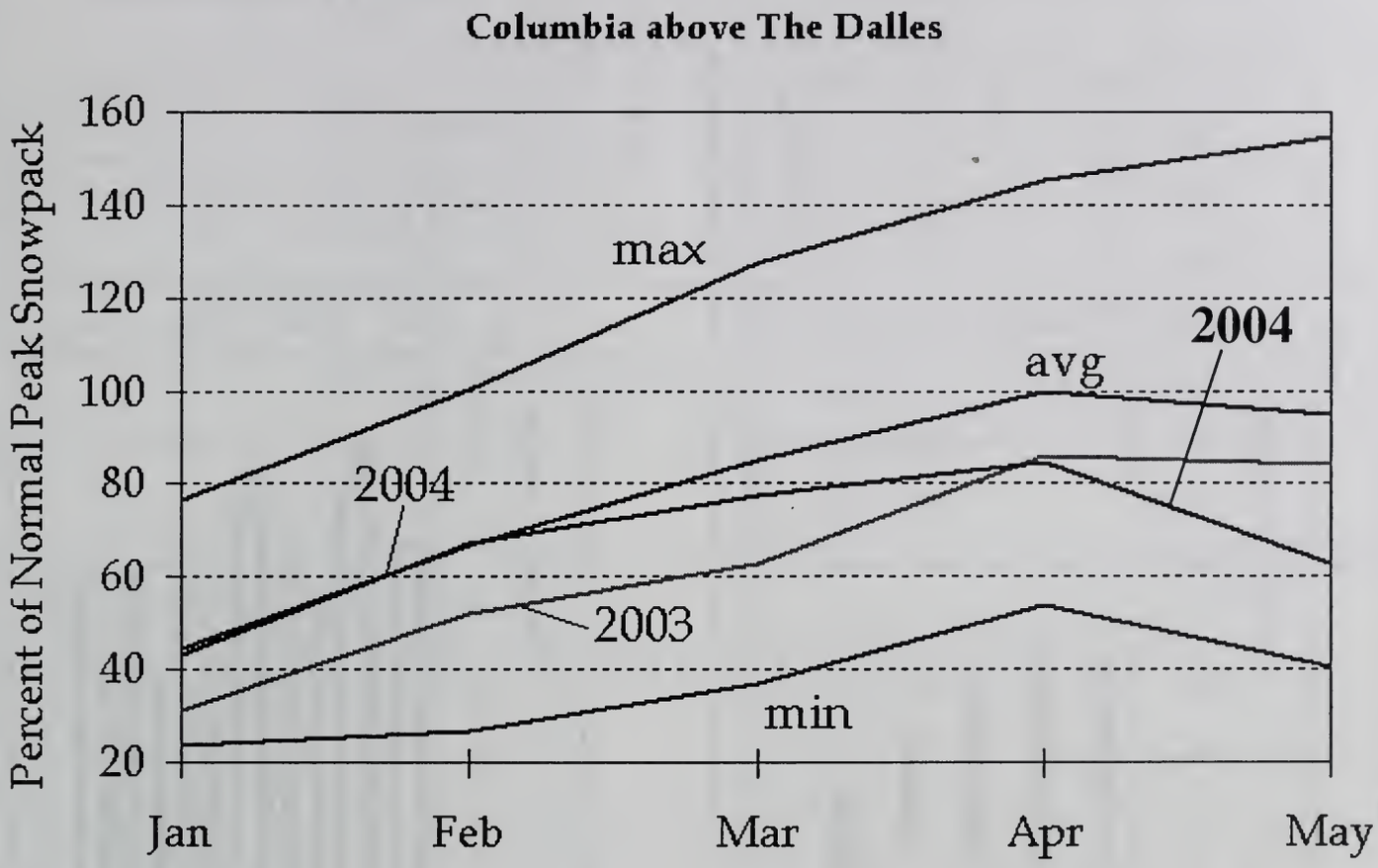
NWCC Anonymous FTP Server:
ftp.wcc.nrcs.usda.gov

**USDA-NRCS Agency Homepages**

Washington:
http://www.wa.nrcs.usda.gov/nrcs

NRCS National:
http://www.nrcs.usda.gov

# Columbia Basin Snowpack Summary

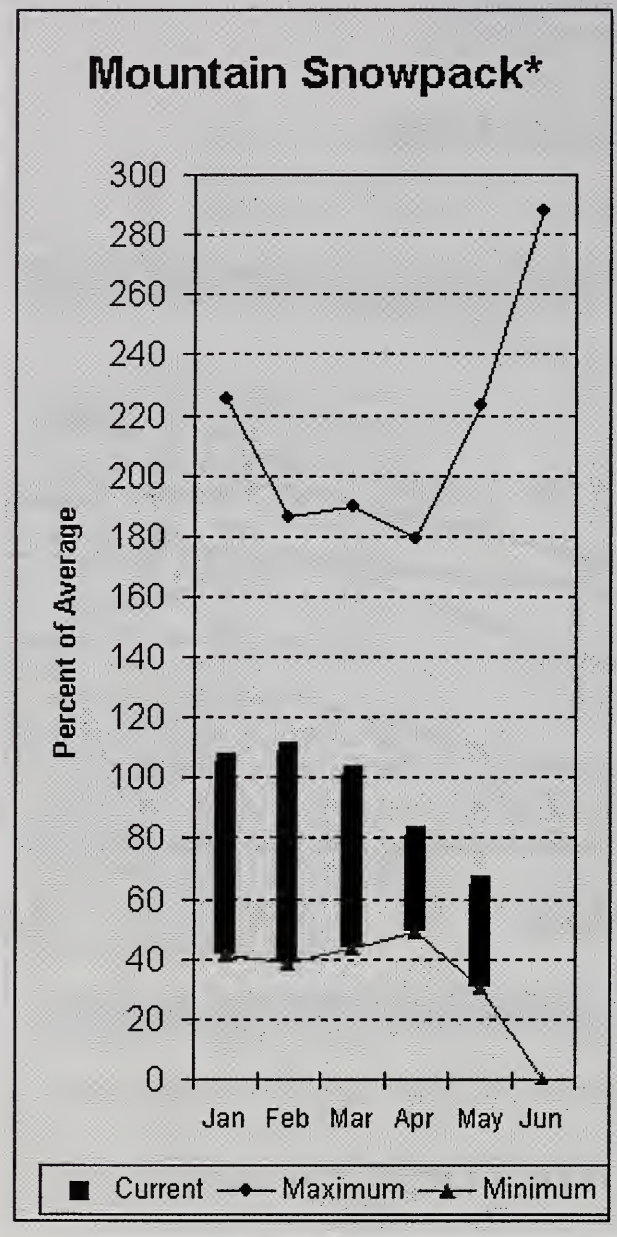


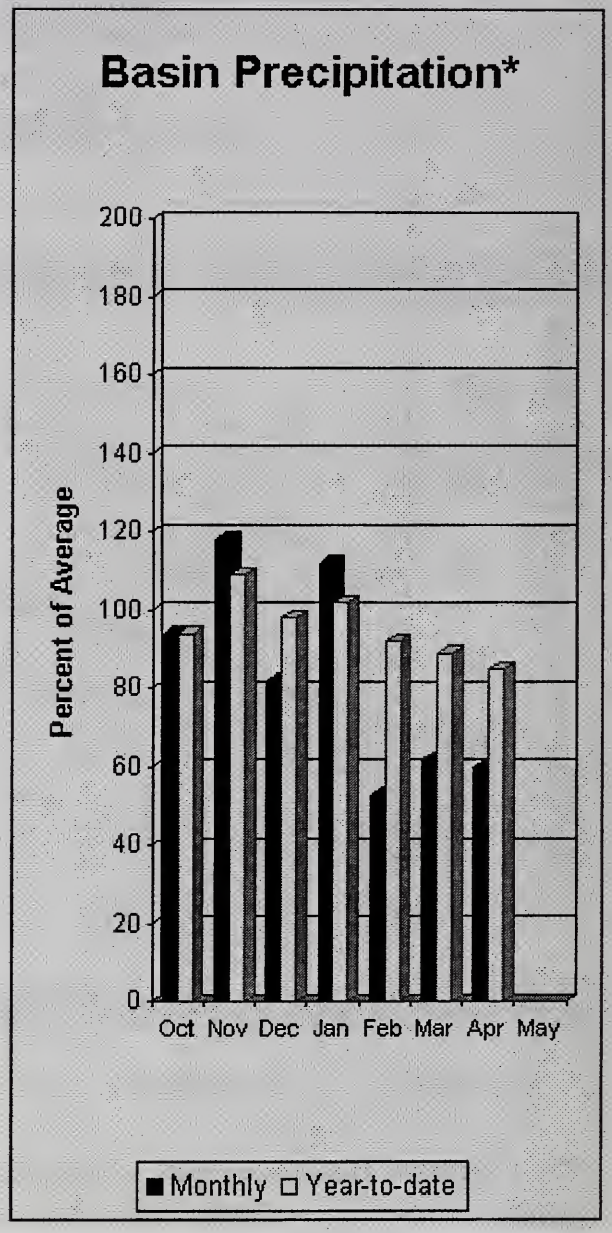

May 5, 2004

The Columbia Basin snowpack was 66 percent of average on May 1! This compares to 85 percent of average on April 1 and 89 percent of last year. The overall snowpack is at 63 percent of the average peak accumulation, compared to 84 percent last year. Hot and dry characterizes the weather pattern we have been in over the last two months. Most of the basin has received very little precipitation during March and April. And to top that off, snowmelt started early over much of the basin; a result of much above normal temperatures. As a result, much of the mountain snowpack declined in record proportions. The Snake has been especially hard hit by the hot, dry weather. While there have been some modest rises in the streamflow levels, most streams and rivers are below median levels. With poor remaining snowpacks, expected Spring and Summer runoff could be very low.

Not a basin was spared from the onslaught of hot and dry weather. The basin snowpack above Castlegar declined from 87 percent to 71 percent of average. The basin snowpack above Grand Coulee declined from 85 percent to 70 percent of average. And worst of all... the Snake snowpack plunged from 84 percent of average on April 1 to 60 percent of average on May 1.

# Spokane River Basin




*Based on selected stations

The May 1 forecasts for summer runoff within the Spokane River Basin are 62% of average near Post Falls and 66% at Long Lake. The Chamokane River near Long Lake forecasted to have 53% of average flows for the May-August period. The forecast is based on a basin snowpack that is 65% of average and precipitation that is 85% of average for the water year. Precipitation for April was much below normal at 60% of average. Streamflow on the Spokane River at Long Lake was 84% of average for April. May 1 storage in Coeur d'Alene Lake was 156,500-acre feet, 63% of average and 66% of capacity. Snowpack at Quartz Peak SNOTEL site was 38% of average with 5.7 inches of water content. Temperatures in the Spokane basin were 4 degree above average for the past 28 days and 1 degree above normal for the water year.

*For more information contact your local Natural Resources Conservation Service office.*

SPOKANE RIVER BASIN
Streamflow Forecasts - May 1, 2004

| Forecast Point | Forecast Period | <<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF) | 70% (1000AF) | 50% (Most Probable) (1000AF) | (% AVG.) | 30% (1000AF) | 10% (1000AF) | 30-Yr Avg. (1000AF) |
|---|---|---|---|---|---|---|---|---|
| SPOKANE near Post Falls (2) | MAY-SEP | 690 | 935 | 1100 | 62 | 1270 | 1510 | 1770 |
| | MAY-JUL | 650 | 880 | 1040 | 62 | 1200 | 1430 | 1670 |
| SPOKANE at Long Lake (2) | MAY-JUL | 810 | 1080 | 1260 | 66 | 1440 | 1710 | 1910 |
| | MAY-SEP | 940 | 1220 | 1410 | 66 | 1600 | 1880 | 2130 |
| CHAMOKANE CREEK near Long Lake | MAY-AUG | 3.5 | 4.6 | 5.4 | 53 | 6.9 | 9.0 | 10.2 |
| | JUL-AUG | 2.09 | 2.28 | 2.40 | 69 | 2.60 | 2.80 | 3.50 |

SPOKANE RIVER BASIN
Reservoir Storage (1000 AF) - End of April

| Reservoir | Usable Capacity | *** Usable Storage *** This Year | Last Year | Avg |
|---|---|---|---|---|
| COEUR D'ALENE | 238.5 | 156.5 | 159.9 | 249.7 |

SPOKANE RIVER BASIN
Watershed Snowpack Analysis - May 1, 2004

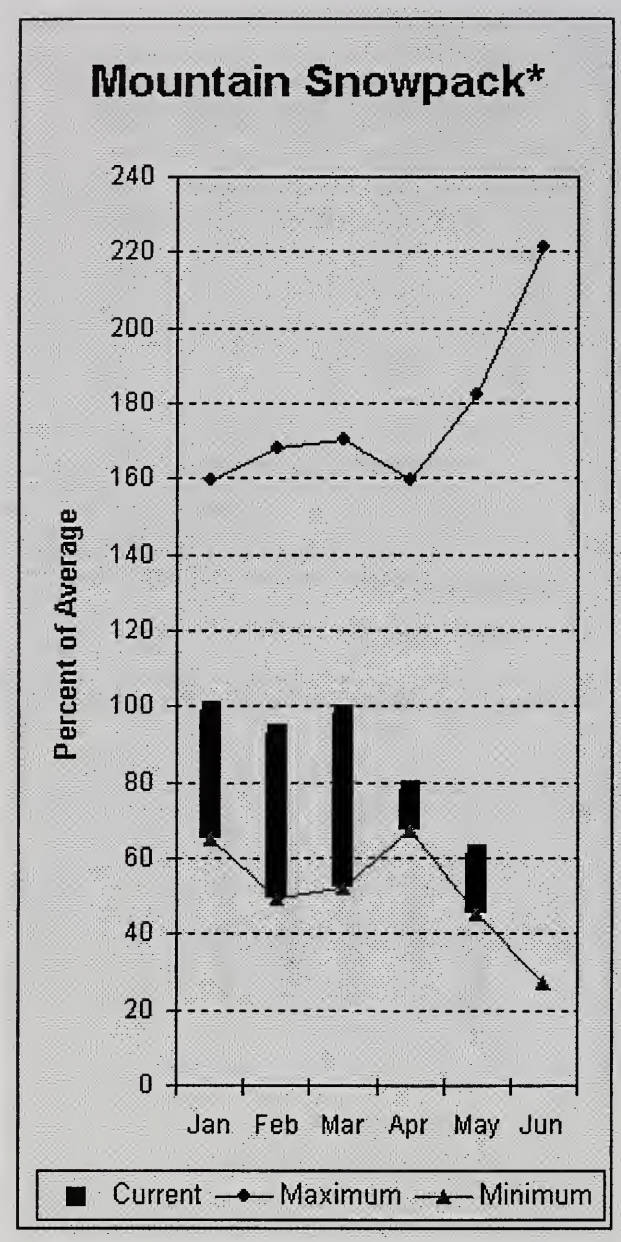
| Watershed | Number of Data Sites | This Year as % of Last Yr | Average |
|---|---|---|---|
| SPOKANE RIVER | 11 | 113 | 65 |
| NEWMAN LAKE | 1 | 81 | 38 |

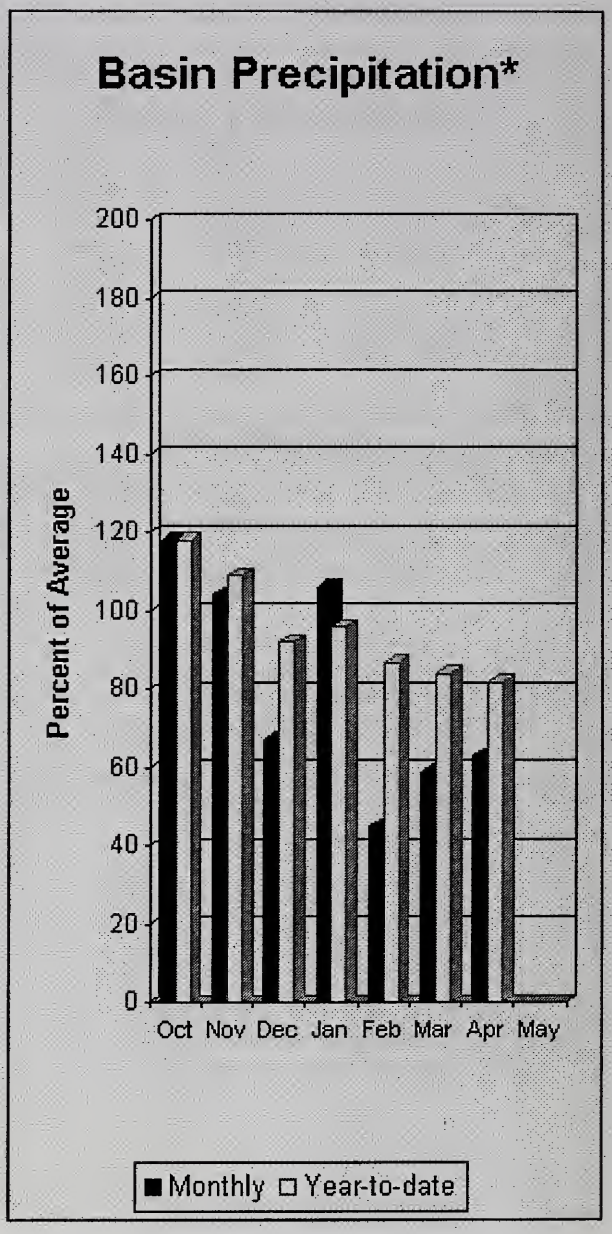
* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The average is computed for the 1971-2000 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural volume - actual volume may be affected by upstream water management.

# Colville - Pend Oreille River Basins




*Based on selected stations

The May – September average forecast for the Kettle River streamflow is 70%, Colville at Kettle Falls is 46%, and Priest River near the Town of Priest River is 69%. April streamflow was 112% of average on the Pend Oreille River, 130% on the Columbia at the International Boundary and 126% on the Kettle River. May 1 snow cover was 61% of average in the Pend Oreille Basin River Basin. Bunchgrass Meadows SNOTEL site had 16.4 inches of snow water on the snow pillow. Normally Bunchgrass would have 28.6 inches on May 1. Precipitation during April was 63% of average, bringing the year-to-date precipitation to 82% of average. Average temperatures were 4 degree below normal for the past 28 days and 1 degree above normal for the water year.

*For more information contact your local Natural Resources Conservation Service office.*

## Streamflow Forecasts - May 1, 2004

| Forecast Point | Forecast Period | <<======= Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF) | 70% (1000AF) | 50% (Most Probable) (1000AF) | (% AVG.) | 30% (1000AF) | 10% (1000AF) | 30-Yr Avg. (1000AF) |
|---|---|---|---|---|---|---|---|---|
| PEND OREILLE Lake Inflow (2) | MAY-JUL | 5140 | 6040 | 6650 | 63 | 7260 | 8160 | 10600 |
| | MAY-SEP | 5800 | 6800 | 7480 | 63 | 8160 | 9160 | 11800 |
| PRIEST near Priest River (1,2) | MAY-JUL | 315 | 390 | 425 | 69 | 460 | 535 | 615 |
| | MAY-SEP | 325 | 420 | 460 | 69 | 500 | 595 | 670 |
| PEND OREILLE bl Box Canyon (2) | MAY-JUL | 4980 | 6100 | 6860 | 64 | 7620 | 8740 | 10700 |
| | MAY-SEP | 5780 | 6930 | 7710 | 65 | 8490 | 9640 | 11900 |
| COLVILLE at Kettle Falls | MAY-SEP | 16.0 | 32 | 42 | 46 | 52 | 68 | 92 |
| | MAY-JUL | 14.0 | 27 | 36 | 46 | 45 | 58 | 79 |
| KETTLE near Laurier | MAY-SEP | 880 | 1040 | 1150 | 70 | 1260 | 1420 | 1640 |
| | MAY-JUL | 840 | 975 | 1070 | 70 | 1160 | 1300 | 1540 |
| COLUMBIA at Birchbank (1,2) | MAY-JUL | 23532 | 25779 | 26800 | 85 | 27820 | 30070 | 31600 |
| | MAY-SEP | 30236 | 33099 | 34400 | 86 | 35700 | 38560 | 40200 |
| COLUMBIA at Grand Coulee Dm (1,2) | MAY-SEP | 39523 | 43702 | 45600 | 80 | 47500 | 51680 | 56700 |
| | MAY-JUL | 32213 | 35642 | 37200 | 80 | 38760 | 42190 | 46600 |

### COLVILLE - PEND OREILLE RIVER BASINS
### Reservoir Storage (1000 AF) - End of April

| Reservoir | Usable Capacity | *** Usable Storage *** This Year | Last Year | Avg |
|---|---|---|---|---|
| ROOSEVELT | | NO REPORT | | |
| BANKS | | NO REPORT | | |

### COLVILLE - PEND OREILLE RIVER BASINS
### Watershed Snowpack Analysis - May 1, 2004

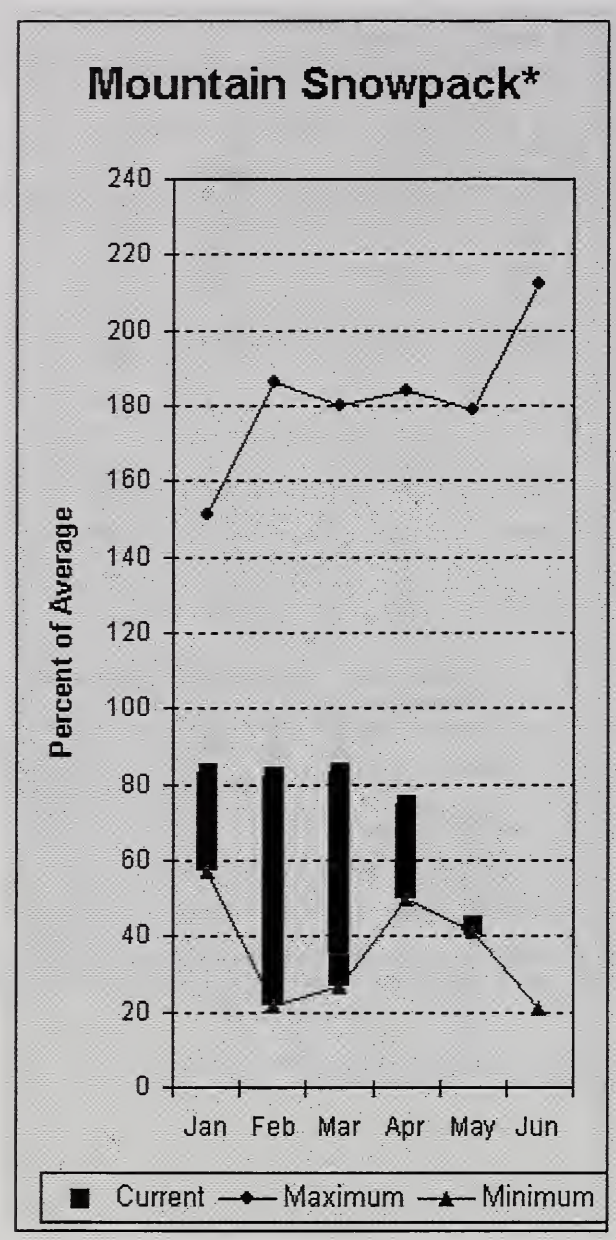
| Watershed | Number of Data Sites | This Year as % of Last Yr | Average |
|---|---|---|---|
| COLVILLE RIVER | 0 | 0 | 0 |
| PEND OREILLE RIVER | 10 | 65 | 56 |
| KETTLE RIVER | 6 | 65 | 55 |

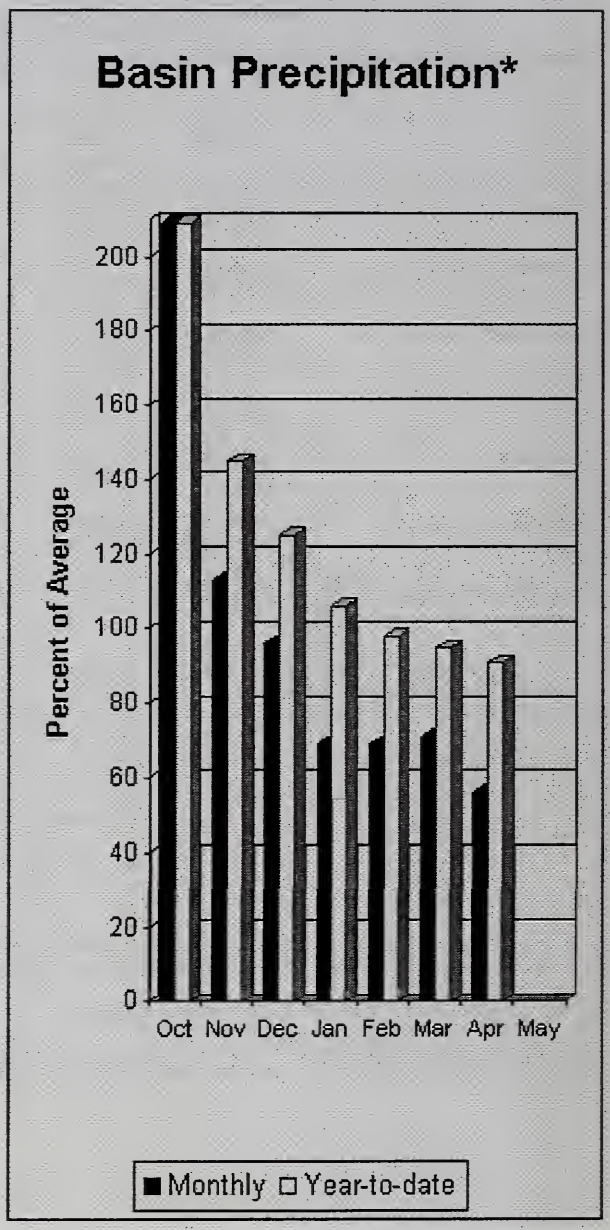
* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The average is computed for the 1971-2000 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural volume - actual volume may be affected by upstream water management.

# Okanogan - Methow River Basins




*Based on selected stations

Summer runoff average forecast for the Okanogan River is 62%, Similkameen River is 57%, Methow River is 59% and Salmon Creek is 37%. May 1 snow cover on the Okanogan was 56% of average, Omak Creek was 28% and the Methow was 55%. April precipitation in the Okanogan-Methow was 56% of average, with precipitation for the water year at 91% of average. April streamflow for the Methow River was 162% of average, 131% for the Okanogan River and 194% for the Similkameen. Salmon Meadows SNOTEL had lost all snow by May 1. Average for this site is 3.9 inches on May 1. Combined storage in the Conconully Reservoirs was 12,800-acre feet, which is 54% of capacity and 67% of the May 1 average. Temperatures were 4 degrees above average for the past 28 days and 1 degree above normal for the water year.

*For more information contact your local Natural Resources Conservation Service office.*

## Streamflow Forecasts - May 1, 2004

| Forecast Point | Forecast Period | <<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF) | 70% (1000AF) | 50% (Most Probable) (1000AF) | 50% (Most Probable) (% AVG.) | 30% (1000AF) | 10% (1000AF) | 30-Yr Avg. (1000AF) |
|---|---|---|---|---|---|---|---|---|
| SIMILKAMEEN near Nighthawk (1) | MAY-JUL | 420 | 615 | 700 | 57 | 785 | 980 | 1220 |
| | MAY-SEP | 470 | 665 | 755 | 57 | 840 | 1040 | 1320 |
| OKANOGAN near Tonasket (1) | MAY-JUL | 370 | 705 | 860 | 61 | 1010 | 1350 | 1400 |
| | MAY-SEP | 450 | 815 | 980 | 62 | 1150 | 1510 | 1590 |
| SALMON CREEK near Conconully | MAY-JUL | 5.2 | 5.9 | 6.3 | 36 | 6.7 | 7.4 | 17.4 |
| | MAY-SEP | 5.5 | 6.2 | 6.7 | 37 | 7.2 | 7.9 | 18.3 |
| BEAVER CREEK below SF near Twisp | MAY-SEP | 3.2 | 4.3 | 5.0 | 45 | 6.6 | 9.0 | 11.2 |
| | MAY-JUL | 2.7 | 3.8 | 4.5 | 45 | 6.1 | 8.4 | 10.1 |
| METHOW RIVER near Pateros | MAY-SEP | 415 | 475 | 520 | 59 | 565 | 625 | 880 |
| | MAY-JUL | 385 | 440 | 480 | 59 | 520 | 575 | 810 |

### OKANOGAN - METHOW RIVER BASINS
### Reservoir Storage (1000 AF) - End of April

| Reservoir | Usable Capacity | *** Usable Storage *** This Year | Last Year | Avg |
|---|---|---|---|---|
| SALMON LAKE | 10.5 | 5.4 | 3.6 | 8.9 |
| CONCONULLY RESERVOIR | 13.0 | 7.4 | 5.8 | 10.1 |

### OKANOGAN - METHOW RIVER BASINS
### Watershed Snowpack Analysis - May 1, 2004

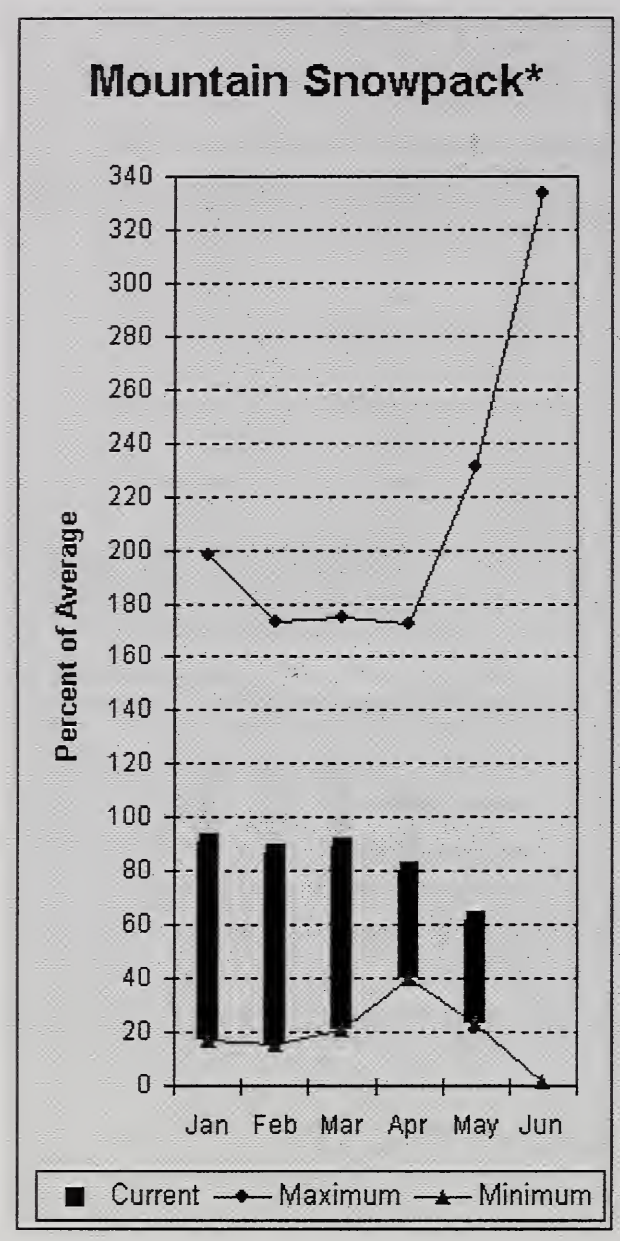
| Watershed | Number of Data Sites | This Year as % of Last Yr | This Year as % of Average |
|---|---|---|---|
| OKANOGAN RIVER | 19 | 76 | 55 |
| OMAK CREEK | 1 | 25 | 28 |
| SANPOIL RIVER | 0 | 0 | 0 |
| SIMILKAMEEN RIVER | 4 | 60 | 32 |
| TOATS COULEE CREEK | 0 | 0 | 0 |
| CONCONULLY LAKE | 1 | 0 | 0 |
| METHOW RIVER | 3 | 73 | 55 |

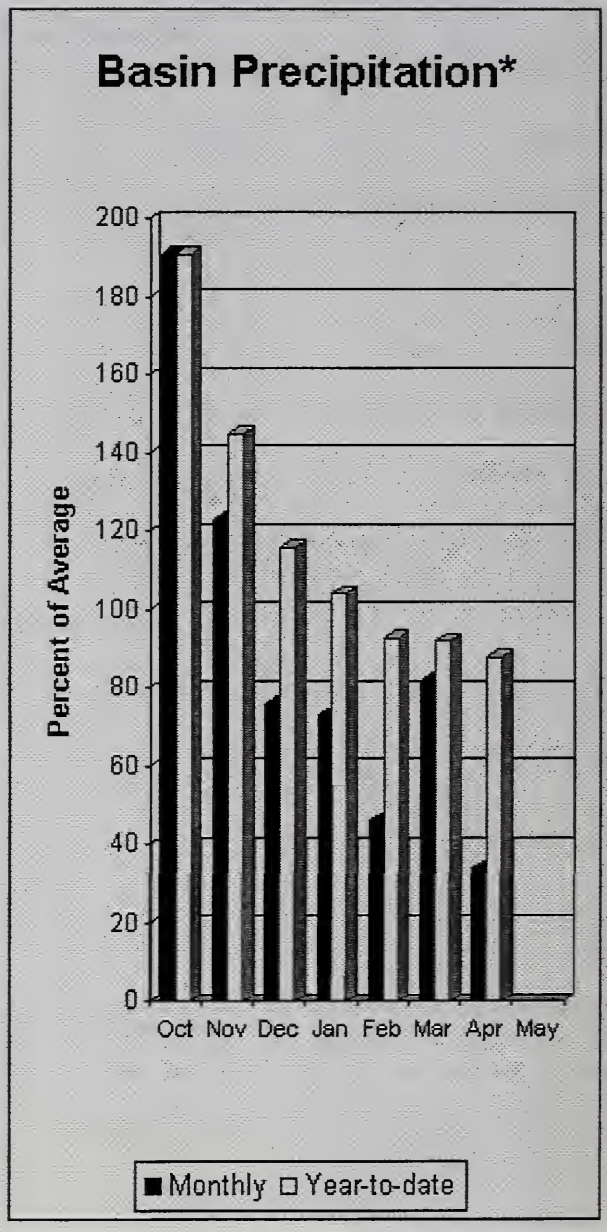
* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The average is computed for the 1971-2000 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural volume - actual volume may be affected by upstream water management.

# Wenatchee - Chelan River Basins




*Based on selected stations

Precipitation during April was 34% of average in the basin and 88% for the year-to-date. Runoff for Entiat River is forecast to be 49% of average for the summer. The May-September average forecast for Chelan River is 61%, Wenatchee River at Plain is 64%, Stehekin is 61%, Icicle Creek is 64% and Stemilt Creek 80%. April average streamflows on the Chelan River were 136% and on the Wenatchee River 133%. May 1 snowpack in the Wenatchee River Basin was 46% of average; the Chelan, 53%; the Entiat, 0%; Stemilt Creek, 86% and Colockum Creek, 0%. Reservoir storage in Lake Chelan was 341,800-acre feet, 131% of May 1 average and 51% of capacity. Lyman Lake SNOTEL had the most snow water with 33.9 inches of water. This site would normally have 67.2 inches on May 1. Temperatures were 3-4 degrees above normal for the past 28 days and near normal for the water year.

*For more information contact your local Natural Resources Conservation Service office.*

## Streamflow Forecasts - May 1, 2004

| Forecast Point | Forecast Period | <<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF) | 70% (1000AF) | 50% (Most Probable) (1000AF) | (% AVG.) | 30% (1000AF) | 10% (1000AF) | 30-Yr Avg. (1000AF) |
|---|---|---|---|---|---|---|---|---|
| CHELAN RIVER near Chelan | MAY-SEP | 535 | 600 | 645 | 61 | 690 | 755 | 1050 |
| | MAY-JUL | 450 | 515 | 555 | 61 | 595 | 660 | 910 |
| STEHEKIN near STEHEKIN | MAY-SEP | 375 | 425 | 455 | 61 | 485 | 535 | 745 |
| | MAY-JUL | 305 | 350 | 380 | 61 | 410 | 455 | 620 |
| ENTIAT RIVER nr Ardenvoir | MAY-SEP | 87 | 98 | 105 | 49 | 112 | 123 | 215 |
| | MAY-JUL | 79 | 89 | 96 | 49 | 103 | 113 | 195 |
| WENATCHEE at Plain | MAY-SEP | 535 | 610 | 660 | 64 | 710 | 785 | 1035 |
| | MAY-JUL | 490 | 545 | 585 | 64 | 625 | 680 | 915 |
| WENATCHEE R. at Peshastin | MAY-SEP | 402 | 693 | 890 | 63 | 1087 | 1380 | 1410 |
| | MAY-JUL | 355 | 614 | 790 | 63 | 966 | 1225 | 1250 |
| STEMILT CK nr Wenatchee (miner's in) | MAY-SEP | 75 | 96 | 110 | 80 | 124 | 145 | 138 |
| ICICLE CREEK near Leavenworth | MAY-SEP | 180 | 190 | 195 | 64 | 200 | 210 | 305 |
| | MAY-JUL | 155 | 170 | 180 | 64 | 190 | 205 | 280 |
| COLUMBIA R. bl Rock Island Dam (2) | MAY-SEP | 43379 | 46964 | 49400 | 80 | 51840 | 55420 | 61600 |
| | MAY-JUL | 34721 | 38221 | 40600 | 80 | 42980 | 46480 | 51100 |

### WENATCHEE - CHELAN RIVER BASINS
### Reservoir Storage (1000 AF) - End of April

| Reservoir | Usable Capacity | *** Usable Storage *** This Year | Last Year | Avg |
|---|---|---|---|---|
| CHELAN LAKE | 676.1 | 341.8 | 295.4 | 265.6 |

### WENATCHEE - CHELAN RIVER BASINS
### Watershed Snowpack Analysis - May 1, 2004

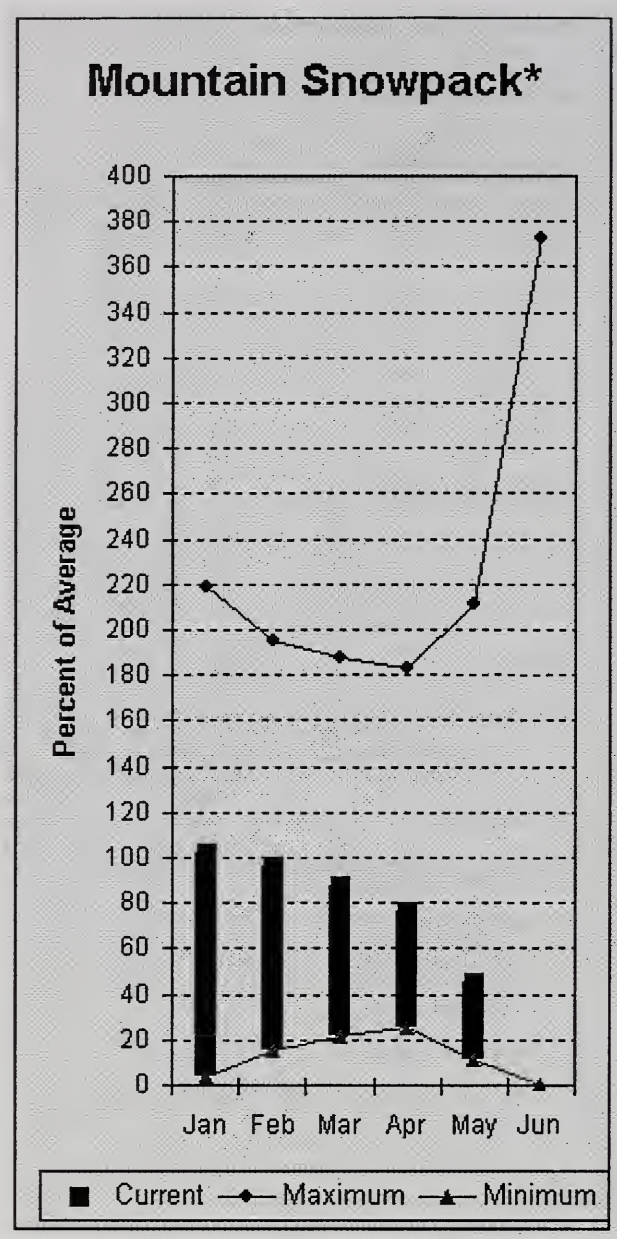
| Watershed | Number of Data Sites | This Year as % of Last Yr | Average |
|---|---|---|---|
| CHELAN LAKE BASIN | 4 | 64 | 53 |
| ENTIAT RIVER | 1 | 0 | 0 |
| WENATCHEE RIVER | 11 | 64 | 46 |
| STEMILT CREEK | 1 | 132 | 86 |
| COLOCKUM CREEK | 1 | 0 | 0 |

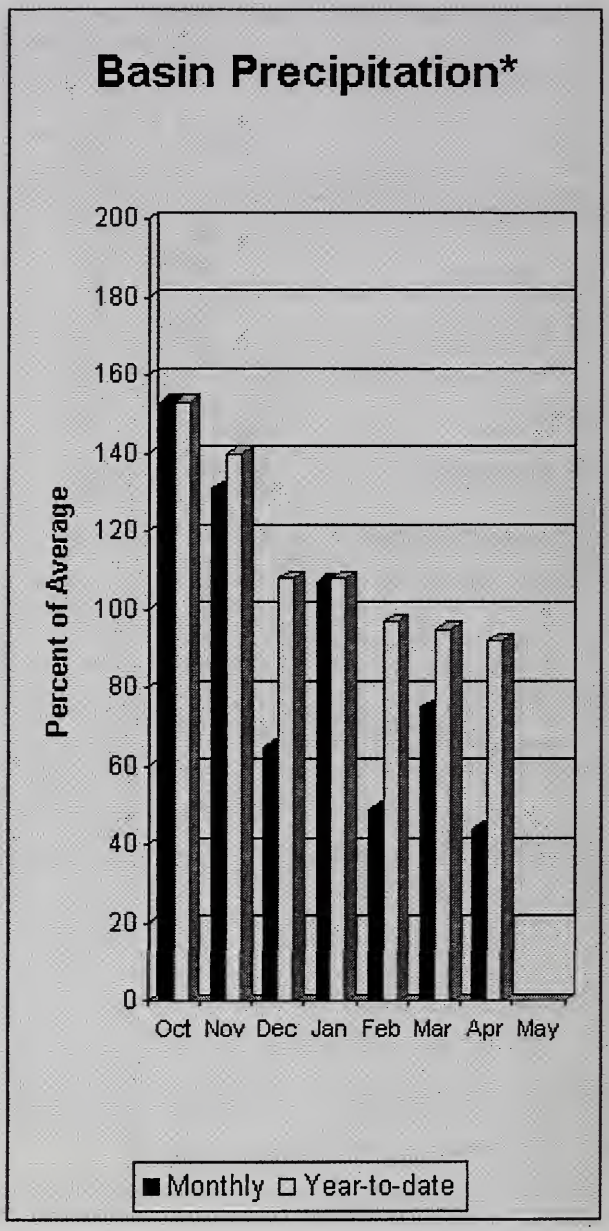
* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The average is computed for the 1971-2000 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural volume - actual volume may be affected by upstream water management.

# Upper Yakima River Basin




*Based on selected stations

May 1 reservoir storage for the Upper Yakima reservoirs was 566,600-acre feet, 91% of average. Forecasts for the Yakima River at Cle Elum are 62% of average and the Teanaway River near Cle Elum is at 42%. Lake inflows are all forecasted to be in the 58% - 65% range this summer. April streamflows within the basin were Yakima near Cle Elum at 114% and Cle Elum River near Roslyn at 126%. May 1 snowpack was 45% based upon 9 snow courses and SNOTEL readings within the Upper Yakima Basin. Precipitation was 44% of average for April and 92% year-to-date. Temperatures were 3-4 degrees above normal for the past 28 days and near average for the water year. Volume forecasts for the Yakima Basin are for natural flow. As such, they may differ from the U.S. Bureau of Reclamation's forecast for the total water supply available, which includes irrigation return flow.

*For more information contact your local Natural Resources Conservation Service office.*

## Streamflow Forecasts - May 1, 2004

| Forecast Point | Forecast Period | <<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF) | 70% (1000AF) | 50% (Most Probable) (1000AF) | (% AVG.) | 30% (1000AF) | 10% (1000AF) | 30-Yr Avg. (1000AF) |
|---|---|---|---|---|---|---|---|---|
| KEECHELUS LAKE INFLOW | MAY-JUL | 37 | 47 | 54 | 59 | 61 | 71 | 92 |
| | MAY-SEP | 39 | 52 | 60 | 58 | 68 | 81 | 103 |
| KACHESS LAKE INFLOW | MAY-JUL | 36 | 43 | 48 | 57 | 53 | 60 | 84 |
| | MAY-SEP | 39 | 47 | 53 | 58 | 59 | 67 | 92 |
| CLE ELUM LAKE INFLOW | MAY-JUL | 180 | 195 | 210 | 64 | 225 | 240 | 330 |
| | MAY-SEP | 200 | 225 | 240 | 65 | 255 | 280 | 370 |
| YAKIMA at Cle Elum | MAY-JUL | 320 | 360 | 390 | 61 | 420 | 460 | 635 |
| | MAY-SEP | 355 | 405 | 440 | 62 | 475 | 525 | 715 |
| TEANAWAY near Cle Elum | MAY-JUL | 23 | 32 | 38 | 42 | 44 | 53 | 91 |
| | MAY-SEP | 25 | 34 | 40 | 42 | 46 | 55 | 95 |

### UPPER YAKIMA RIVER BASIN
### Reservoir Storage (1000 AF) - End of April

| Reservoir | Usable Capacity | *** Usable Storage *** This Year | Last Year | Avg |
|---|---|---|---|---|
| KEECHELUS | 157.8 | 114.1 | 92.2 | 125.6 |
| KACHESS | 239.0 | 154.5 | 200.5 | 188.3 |
| CLE ELUM | 436.9 | 298.0 | 324.2 | 307.0 |

### UPPER YAKIMA RIVER BASIN
### Watershed Snowpack Analysis - May 1, 2004

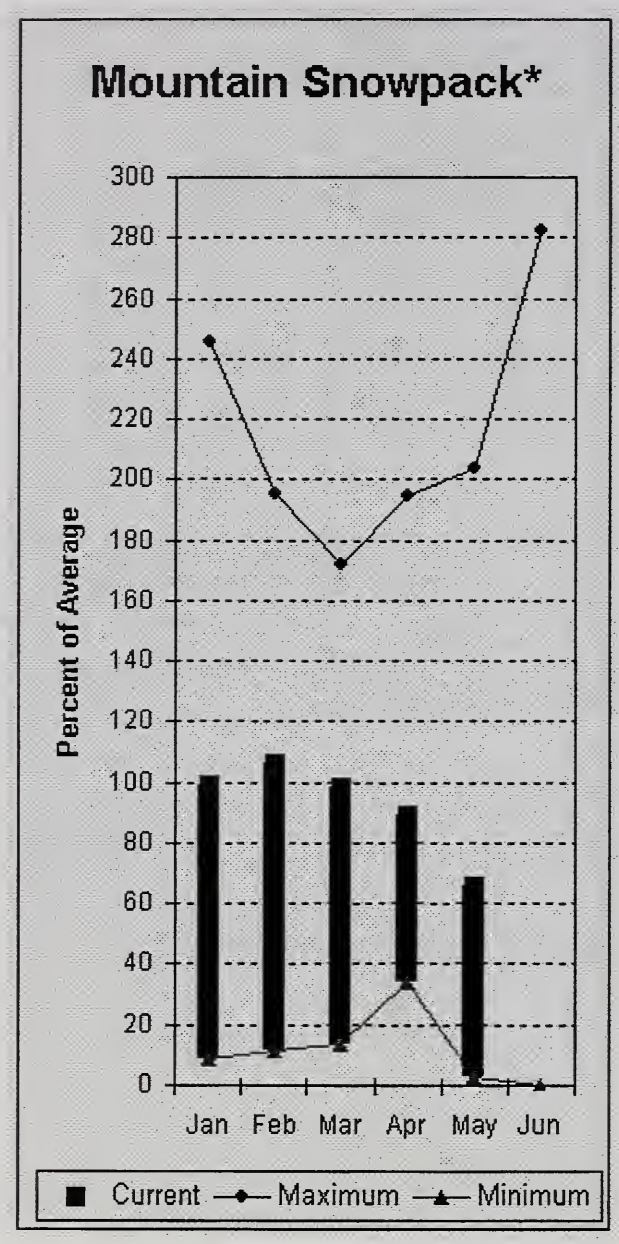
| Watershed | Number of Data Sites | This Year as % of Last Yr | Average |
|---|---|---|---|
| UPPER YAKIMA RIVER | 9 | 72 | 45 |

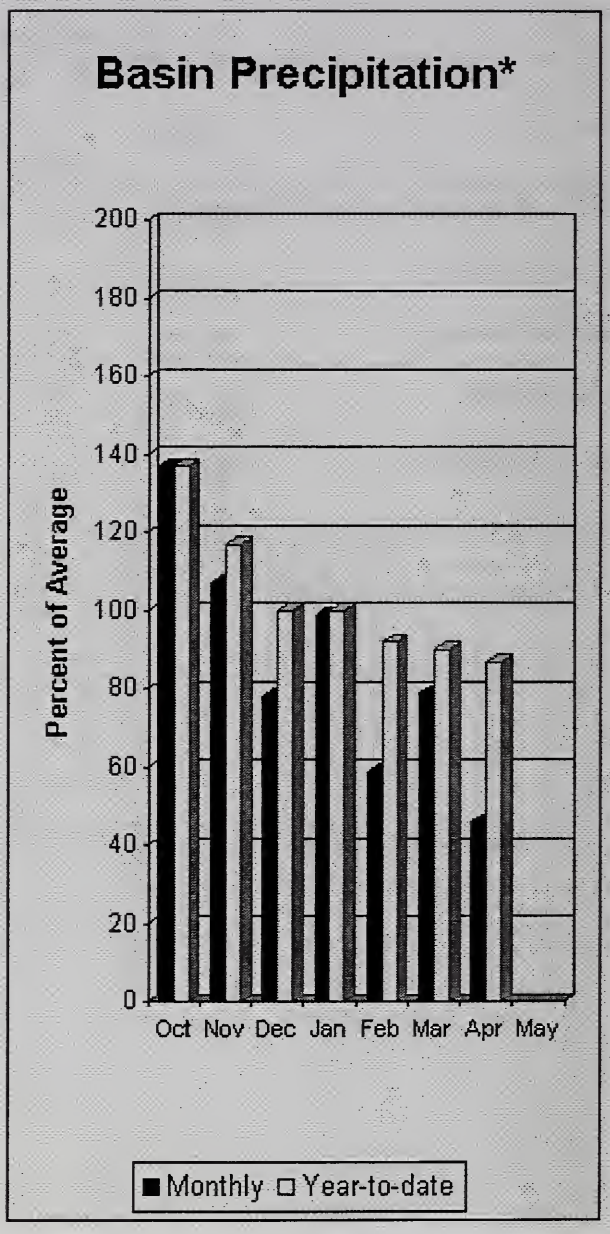
* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The average is computed for the 1971-2000 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural volume - actual volume may be affected by upstream water management.

# Lower Yakima River Basin




*Based on selected stations

April average streamflows within the basin were: Yakima River near Parker, 125%; Naches River near Naches, 121%; and Yakima River at Kiona, 70%. May 1 reservoir storage for Bumping and Rimrock reservoirs was 181,000-acre feet, 107% of average. Forecast averages for Yakima River near Parker are 63%; American River near Nile, 71%; Ahtanum Creek, 66%; and Klickitat River near Glenwood, 72%. May 1 snowpack was 66% based upon 6 snow courses and SNOTEL readings within the Lower Yakima Basin. Precipitation was 46% of average for April and 87% year-to-date for water. Temperatures were3-4 degrees above normal for the past 28 days and 1 degree above average for the water year. Volume forecasts for Yakima Basin are for natural flow. As such, they may differ from the U.S. Bureau of Reclamation's forecast for the total water supply available, which includes irrigation return flow.

*For more information contact your local Natural Resources Conservation Service office.*

## Streamflow Forecasts - May 1, 2004

| Forecast Point | Forecast Period | <<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF) | 70% (1000AF) | 50% (Most Probable) (1000AF) | (% AVG.) | 30% (1000AF) | 10% (1000AF) | 30-Yr Avg. (1000AF) |
|---|---|---|---|---|---|---|---|---|
| BUMPING LAKE INFLOW | MAY-SEP | 62 | 73 | 80 | 71 | 87 | 98 | 113 |
| | MAY-JUL | 59 | 67 | 73 | 71 | 79 | 87 | 103 |
| AMERICAN RIVER near Nile | MAY-SEP | 56 | 65 | 71 | 71 | 77 | 86 | 100 |
| | MAY-JUL | 50 | 58 | 64 | 71 | 70 | 78 | 90 |
| RIMROCK LAKE INFLOW | MAY-SEP | 120 | 135 | 146 | 71 | 157 | 172 | 205 |
| | MAY-JUL | 101 | 112 | 120 | 71 | 128 | 139 | 168 |
| NACHES near Naches | MAY-SEP | 375 | 430 | 465 | 68 | 500 | 555 | 680 |
| | MAY-JUL | 335 | 380 | 410 | 68 | 440 | 485 | 600 |
| AHTANUM CREEK nr Tampico (2) | MAY-SEP | 14.0 | 20 | 23 | 66 | 26 | 32 | 35 |
| | MAY-JUL | 12.0 | 17.0 | 20 | 65 | 23 | 28 | 31 |
| YAKIMA near Parker | MAY-SEP | 765 | 865 | 935 | 63 | 1005 | 1105 | 1480 |
| | MAY-JUL | 660 | 750 | 815 | 63 | 875 | 965 | 1290 |
| KLICKITAT near Glenwood | MAY-JUN | 58 | 66 | 72 | 71 | 78 | 86 | 102 |
| | MAY-SEP | 78 | 89 | 97 | 72 | 105 | 116 | 135 |

LOWER YAKIMA RIVER BASIN
Reservoir Storage (1000 AF) - End of April

| Reservoir | Usable Capacity | *** Usable Storage *** This Year | Last Year | Avg |
|---|---|---|---|---|
| BUMPING LAKE | 33.7 | 31.6 | 30.2 | 19.6 |
| RIMROCK | 198.0 | 149.4 | 191.3 | 149.4 |

LOWER YAKIMA RIVER BASIN
Watershed Snowpack Analysis - May 1, 2004

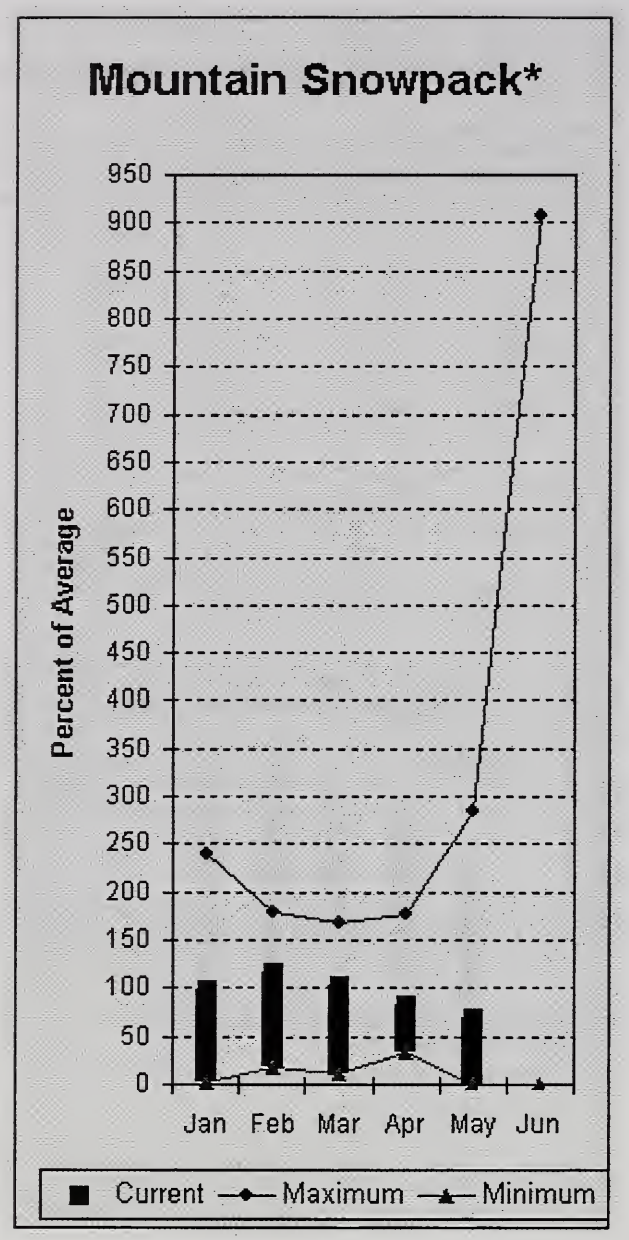
| Watershed | Number of Data Sites | This Year as % of Last Yr | Average |
|---|---|---|---|

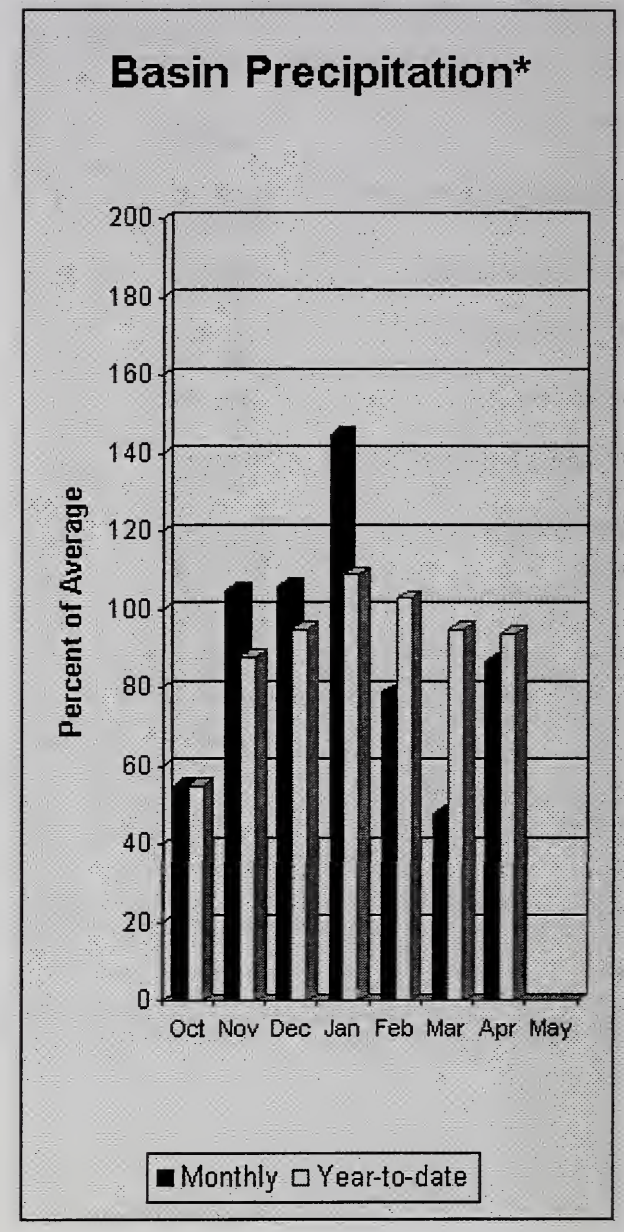
* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The average is computed for the 1971-2000 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural volume - actual volume may be affected by upstream water management.

# Walla Walla River Basin




*Based on selected stations

April precipitation was 87% of average, maintaining the year-to-date precipitation at 94% of average. (Thunder storm activity may have influenced monthly precipitation totals at some stations) Snowpack in the basin was 69% of average. Streamflow forecasts are 63% of average for Mill Creek and 71% for the SF Walla Walla near Milton-Freewater. April streamflow was 149% of average for the Walla Walla River. Average temperatures were 5 degrees above normal for the past 28 days and 1-2 degrees above average for the water year.

*For more information contact your local Natural Resources Conservation Service office.*

## Streamflow Forecasts - May 1, 2004

| Forecast Point | Forecast Period | <<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF) | 70% (1000AF) | 50% (Most Probable) (1000AF) | (% AVG.) | 30% (1000AF) | 10% (1000AF) | 30-Yr Avg. (1000AF) |
|---|---|---|---|---|---|---|---|---|
| MILL CREEK at Walla Walla | MAY-SEP | 2.50 | 4.40 | 5.70 | 63 | 7.00 | 8.90 | 9.00 |
| | MAY-JUL | 2.40 | 4.30 | 5.60 | 63 | 6.90 | 8.80 | 8.90 |
| SF WALLA WALLA near Milton-Freewater | MAY-JUL | 20 | 24 | 27 | 71 | 30 | 34 | 38 |
| | MAY-SEP | 28 | 33 | 36 | 71 | 39 | 44 | 51 |

WALLA WALLA RIVER BASIN
Reservoir Storage (1000 AF) - End of April

| Reservoir | Usable Capacity | *** Usable Storage *** This Year | Last Year | Avg |
|---|---|---|---|---|

WALLA WALLA RIVER BASIN
Watershed Snowpack Analysis - May 1, 2004

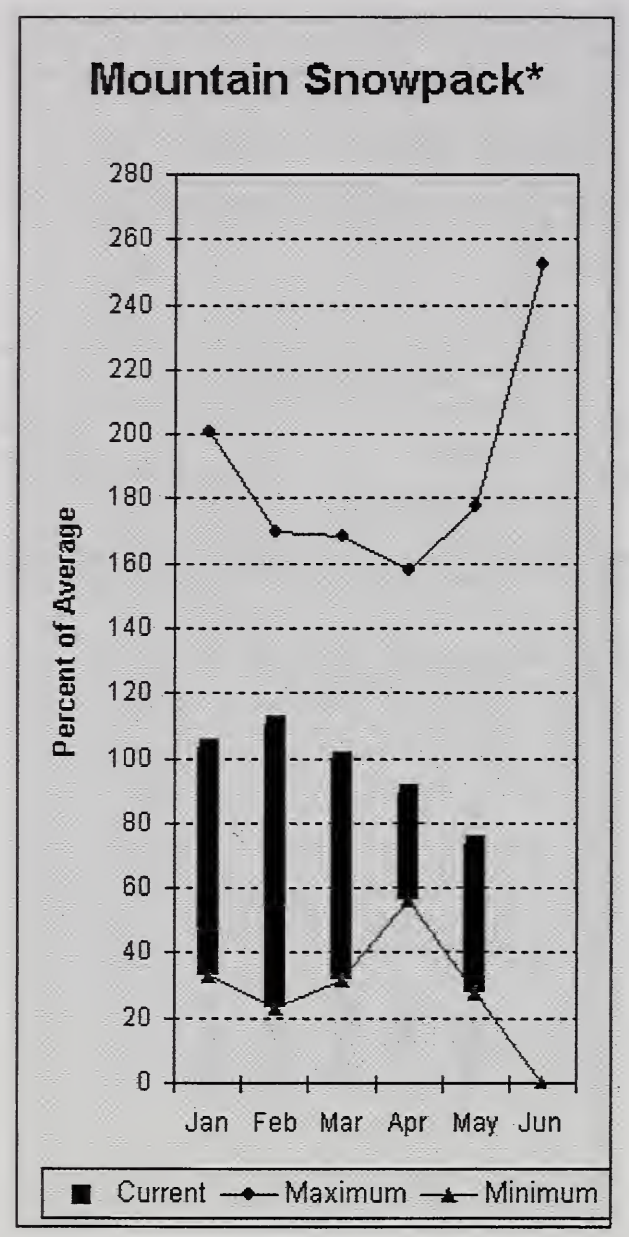
| Watershed | Number of Data Sites | This Year as % of Last Yr | Average |
|---|---|---|---|
| WALLA WALLA RIVER | 2 | 87 | 69 |

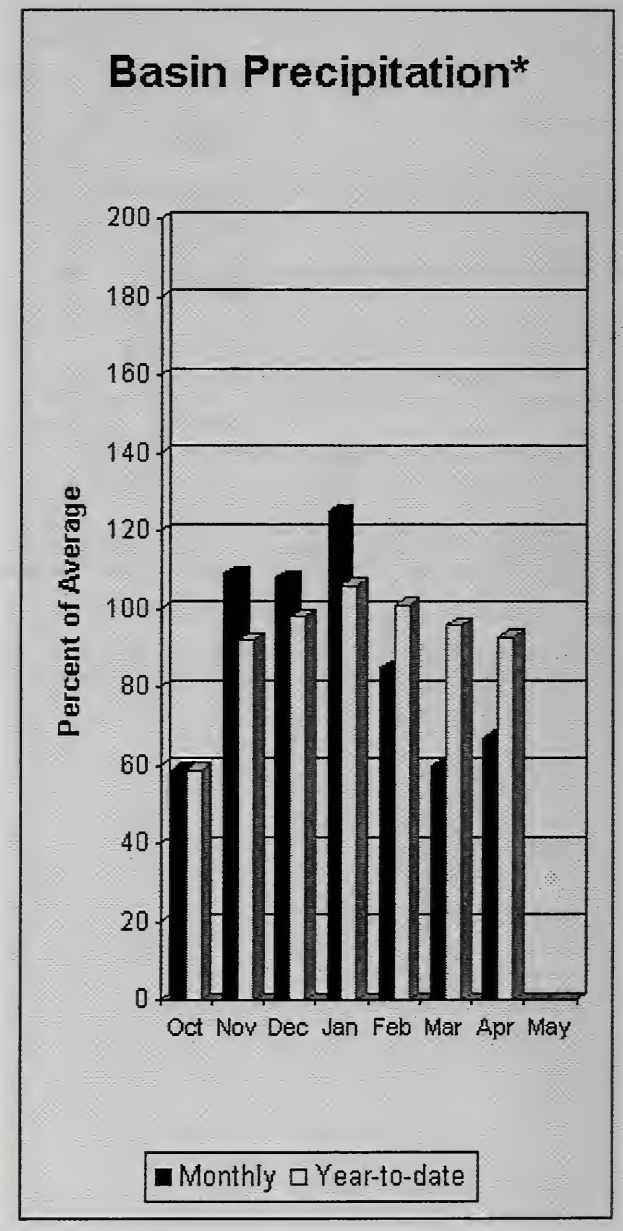
* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The average is computed for the 1971-2000 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural volume - actual volume may be affected by upstream water management.

# Lower Snake River Basin




*Based on selected stations

The May - September forecast is for 67% for Clearwater River at Spalding. The Snake and Grande Ronde rivers can expect summer flows to be about 58% and 67% of normal respectively. April precipitation was 67% of average, bringing the year-to-date precipitation to 93% of average. May 1 snowpack readings averaged 73% of normal. April streamflow was 73% of average for Snake River below Lower Granite Dam and 87% for Grande Ronde River near Troy. Average temperatures were 5 degrees above normal for the past 28 days and 2 degrees above normal for the water year.

*For more information contact your local Natural Resources Conservation Service office.*

## Streamflow Forecasts - May 1, 2004

| Forecast Point | Forecast Period | <<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF) | 70% (1000AF) | 50% (Most Probable) (1000AF) | (% AVG.) | 30% (1000AF) | 10% (1000AF) | 30-Yr Avg. (1000AF) |
|---|---|---|---|---|---|---|---|---|
| GRANDE RONDE at Troy (1) | MAY-JUL | 366 | 534 | 610 | 67 | 686 | 855 | 910 |
| | MAY-SEP | 403 | 590 | 675 | 67 | 760 | 945 | 1010 |
| CLEARWATER at Spalding (1,2) | MAY-JUL | 2780 | 3520 | 3860 | 67 | 4200 | 4940 | 5770 |
| | MAY-SEP | 3010 | 3810 | 4170 | 67 | 4530 | 5330 | 6190 |
| SNAKE blw Lower Granite Dam (1,2) | MAY-JUL | 6240 | 8502 | 9530 | 57 | 10560 | 12820 | 16700 |
| | MAY-SEP | 7395 | 10012 | 11200 | 58 | 12390 | 15000 | 19300 |

LOWER SNAKE RIVER BASIN
Reservoir Storage (1000 AF) - End of April

| Reservoir | Usable Capacity | *** Usable Storage *** This Year | Last Year | Avg |
|---|---|---|---|---|

LOWER SNAKE RIVER BASIN
Watershed Snowpack Analysis - May 1, 2004

| Watershed | Number of Data Sites | This Year as % of Last Yr | Average |
|---|---|---|---|
| LOWER SNAKE, GRANDE RONDE | 9 | 79 | 73 |

* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The average is computed for the 1971-2000 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
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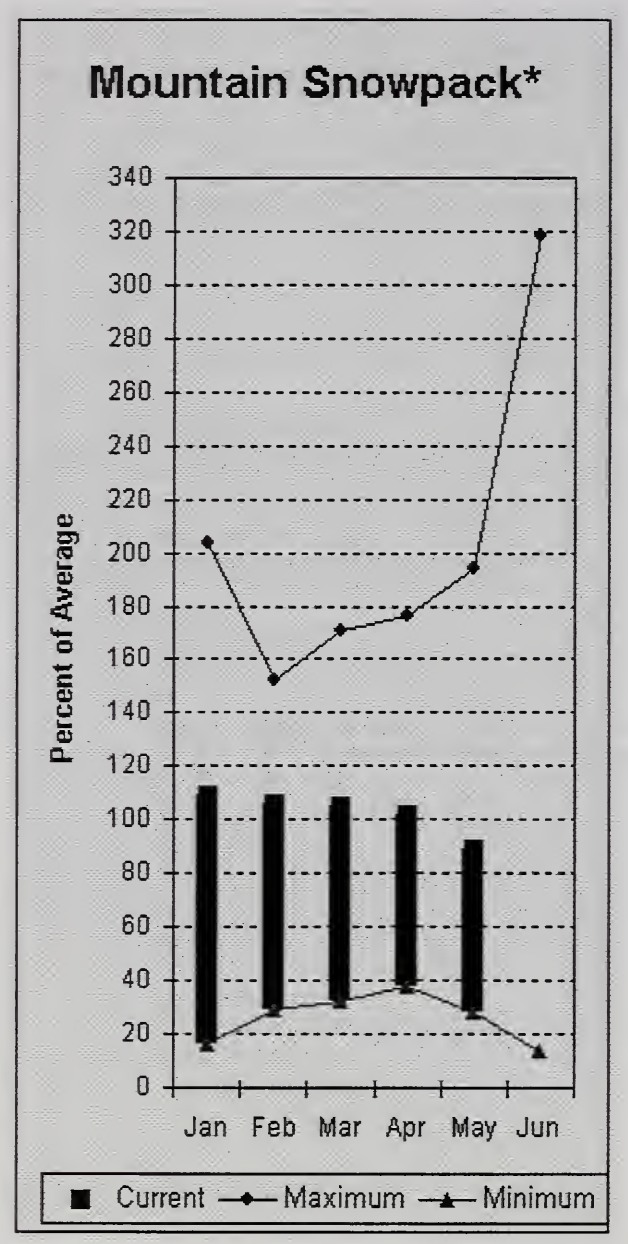
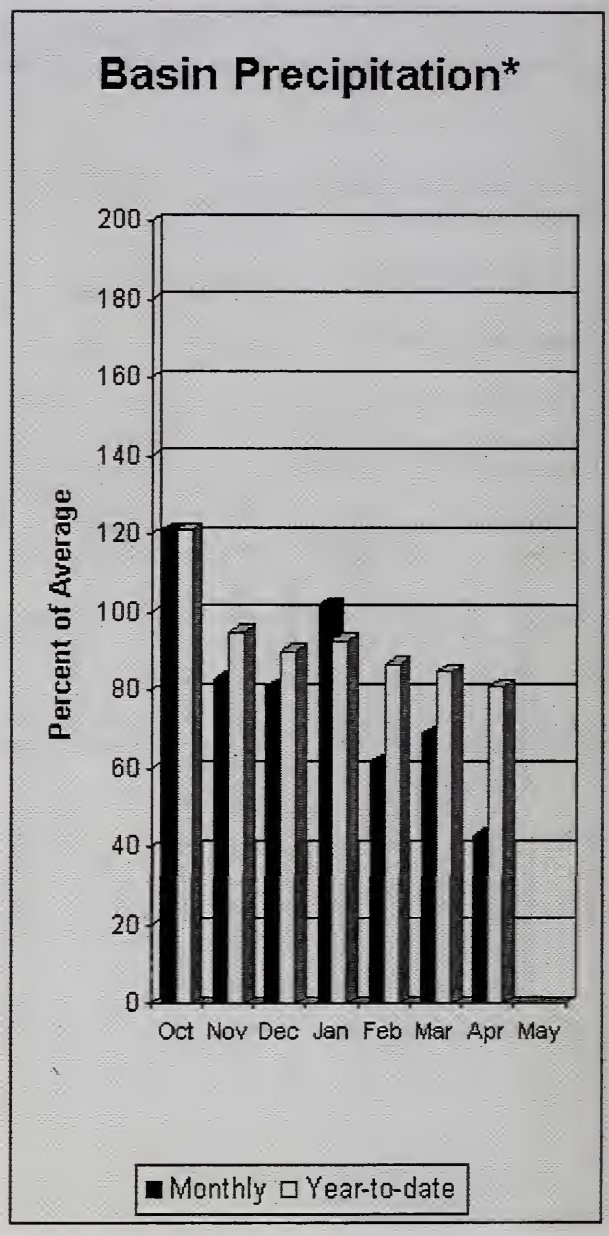
# Cowlitz - Lewis River Basins




*Based on selected stations

Forecasts for May – September streamflows within the basin are Lewis River at Ariel, 85% and Cowlitz River at Castle Rock, 83% of average. The Columbia River at The Dalles is forecasted to have 70%of average flows this summer. April average streamflow for Cowlitz River was 79% and 72% for Lewis River. The Columbia River at The Dalles was at 97% of average. April precipitation was 43% of average and the water-year average was 81%. May 1 snow cover for Cowlitz River was 90%, and Lewis River was 87% of average. Average temperatures were 4-5 degrees above normal during the past 28 days and 2 degrees above normal throughout the water year.

*For more information contact your local Natural Resources Conservation Service office.*

## Streamflow Forecasts - May 1, 2004

| Forecast Point | Forecast Period | <<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF) | 70% (1000AF) | 50% (Most Probable) (1000AF) | (% AVG.) | 30% (1000AF) | 10% (1000AF) | 30-Yr Avg. (1000AF) |
|---|---|---|---|---|---|---|---|---|
| LEWIS at Ariel (2) | MAY-JUL | 436 | 510 | 560 | 84 | 610 | 684 | 667 |
| | MAY-SEP | 563 | 639 | 690 | 85 | 741 | 817 | 812 |
| COWLITZ R. bl Mayfield Dam (2) | MAY-SEP | 440 | 904 | 1220 | 83 | 1536 | 2000 | 1478 |
| | MAY-JUL | 374 | 764 | 1030 | 83 | 1296 | 1686 | 1247 |
| COWLITZ R. at Castle Rock (2) | MAY-SEP | 643 | 1237 | 1640 | 83 | 2043 | 2637 | 1972 |
| | MAY-JUL | 540 | 1034 | 1370 | 84 | 1706 | 2200 | 1629 |
| KLICKITAT near Glenwood | MAY-JUN | 58 | 66 | 72 | 71 | 78 | 86 | 102 |
| | MAY-SEP | 78 | 89 | 97 | 72 | 105 | 116 | 135 |
| COLUMBIA R. at The Dalles (2) | MAY-SEP | 47244 | 54065 | 58700 | 70 | 63330 | 70160 | 84500 |
| | MAY-JUL | 38744 | 44434 | 48300 | 69 | 52170 | 57860 | 70500 |

### COWLITZ - LEWIS RIVER BASINS
### Reservoir Storage (1000 AF) - End of April

| Reservoir | Usable Capacity | *** Usable Storage *** This Year | Last Year | Avg |
|---|---|---|---|---|

### COWLITZ - LEWIS RIVER BASINS
### Watershed Snowpack Analysis - May 1, 2004

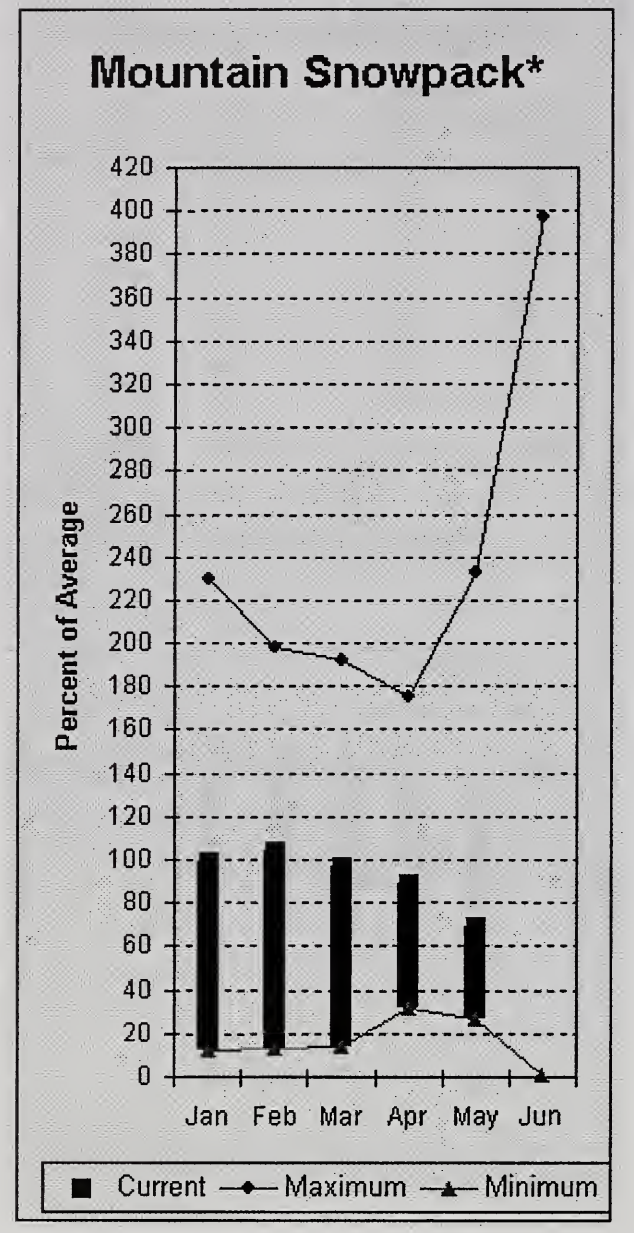
| Watershed | Number of Data Sites | This Year as % of Last Yr | Average |
|---|---|---|---|
| LEWIS RIVER | 4 | 120 | 87 |
| COWLITZ RIVER | 5 | 111 | 90 |

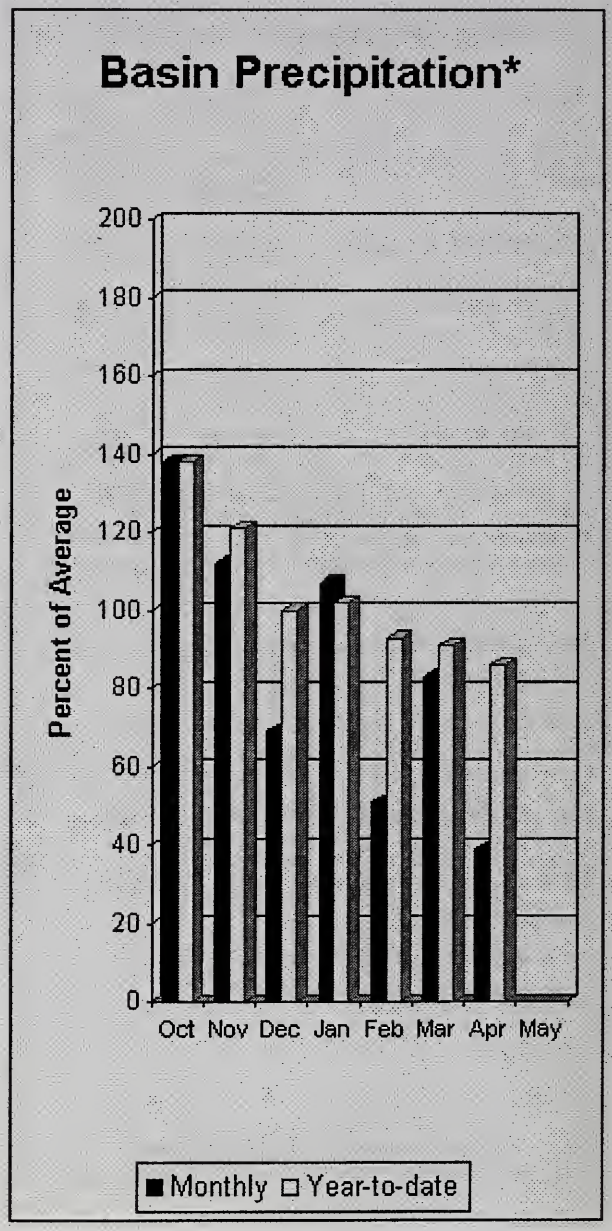
* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The average is computed for the 1971-2000 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural volume - actual volume may be affected by upstream water management.

# White - Green River Basins




*Based on selected stations

Summer runoff is forecast to be 84% of normal for the Green River below Howard Hanson Dam and 86% for the White River near Buckley. May 1 snowpack was 74% of average in both the White River and the Puyallup River basins and 63% in the Green River Basin. Water content on May 1 at Corral Pass SNOTEL, at an elevation of 6,000 feet, was 34.5 inches. This site has a May 1 average of 35.4 inches. April precipitation was 39% of average, bringing the water year-to-date to 86% of average for the basins. Average temperatures in the area were 4 degrees above normal for the past 28 days and near normal for the water-year.

*For more information contact your local Natural Resources Conservation Service office.*

## Streamflow Forecasts - May 1, 2004

| Forecast Point | Forecast Period | <<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF) | 70% (1000AF) | 50% (Most Probable) (1000AF) | (% AVG.) | 30% (1000AF) | 10% (1000AF) | 30-Yr Avg. (1000AF) |
|---|---|---|---|---|---|---|---|---|
| WHITE near Buckley (1,2) | MAY-JUL | 231 | 285 | 310 | 89 | 335 | 389 | 348 |
| | MAY-SEP | 294 | 353 | 380 | 86 | 407 | 466 | 442 |
| GREEN below Howard Hanson (1,2) | MAY-JUL | 95 | 119 | 130 | 82 | 141 | 165 | 159 |
| | MAY-SEP | 112 | 142 | 155 | 84 | 168 | 198 | 185 |

### WHITE - GREEN - PUYALLUP RIVER BASINS
### Reservoir Storage (1000 AF) - End of April

| Reservoir | Usable Capacity | *** Usable Storage *** This Year | Last Year | Avg |
|---|---|---|---|---|

### WHITE - GREEN - PUYALLUP RIVER BASINS
### Watershed Snowpack Analysis - May 1, 2004

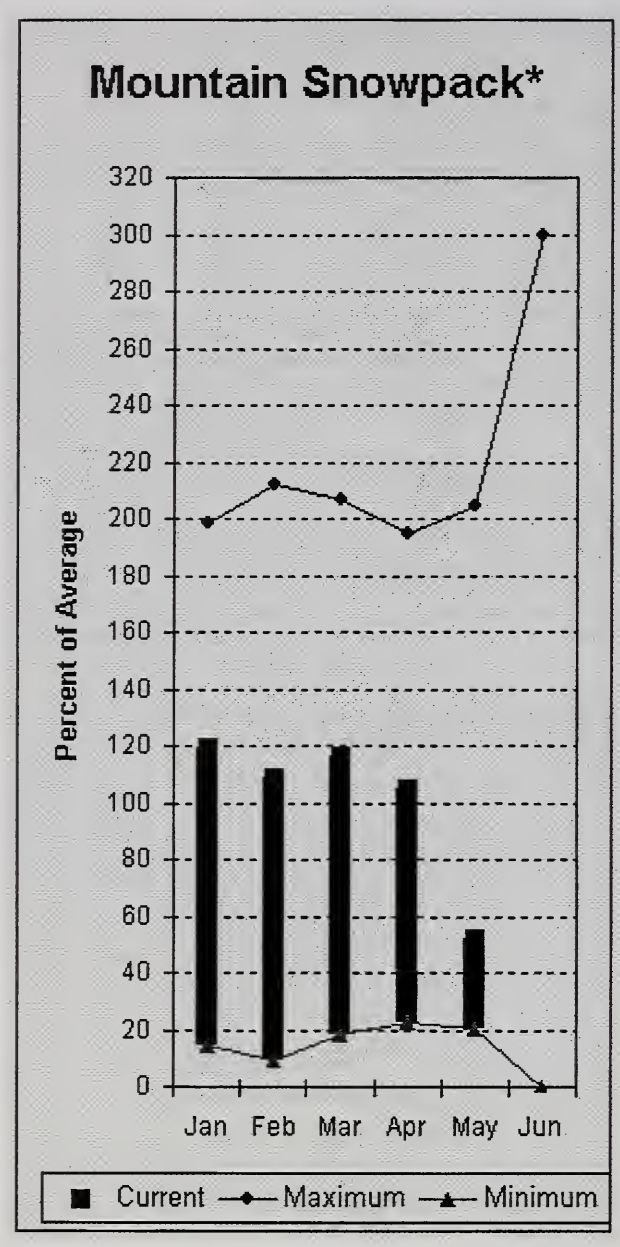
| Watershed | Number of Data Sites | This Year as % of Last Yr | Average |
|---|---|---|---|
| WHITE RIVER | 2 | 76 | 74 |
| GREEN RIVER | 6 | 107 | 62 |
| PUYALLUP RIVER | 2 | 76 | 74 |

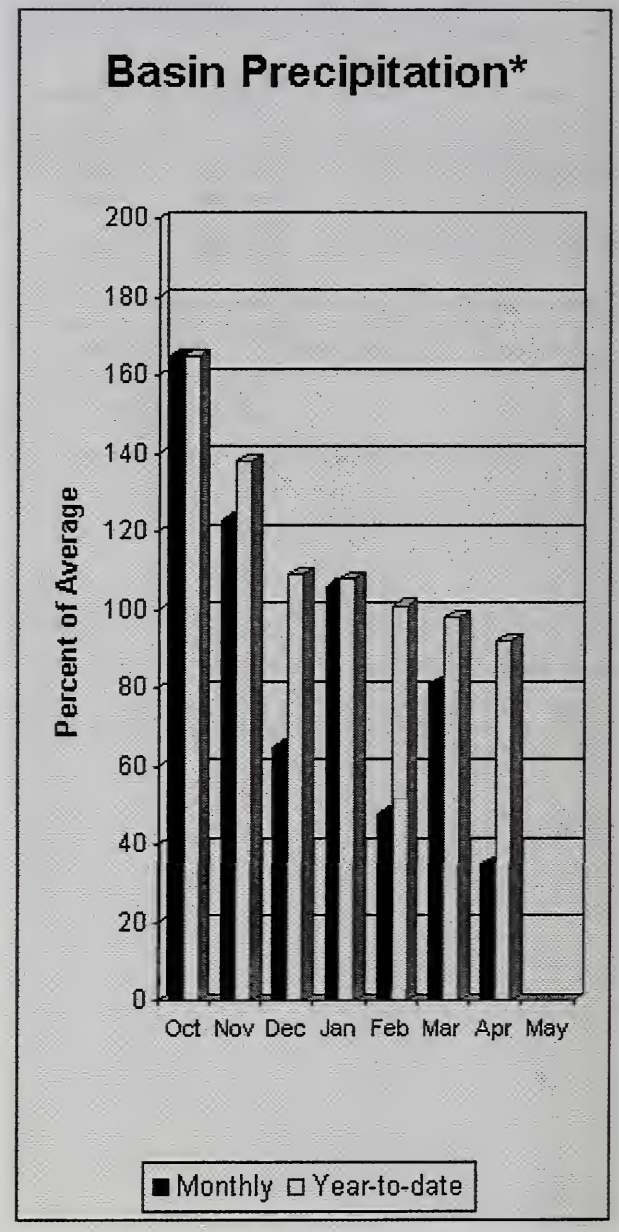
* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The average is computed for the 1971-2000 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural volume - actual volume may be affected by upstream water management.

# Central Puget Sound River Basins




*Based on selected stations

Forecast for spring and summer flows are: 73% for Cedar River near Cedar Falls; 71% for Rex River; 80% for South Fork of the Tolt River; and 67% for Cedar River at Cedar Falls. Basin-wide precipitation for April was 35% of average, bringing water-year-to-date to 92% of average. May 1 average snow cover in Cedar River Basin was 30%, Tolt River Basin was 65%, Snoqualmie River Basin was 54%, and Skykomish River Basin was 58%. Alpine Meadows SNOTEL site, at 3500 feet, had 38.9 inches of water content. Average May 1 water content is 45.8 inches at Alpine Meadows. Temperatures were 5 degrees above average for the past 28 days and near normal for the water-year.

*For more information contact your local Natural Resources Conservation Service office.*

## Streamflow Forecasts - May 1, 2004

| Forecast Point | Forecast Period | <<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF) | 70% (1000AF) | 50% (Most Probable) (1000AF) | 50% (Most Probable) (% AVG.) | 30% (1000AF) | 10% (1000AF) | 30-Yr Avg. (1000AF) |
|---|---|---|---|---|---|---|---|---|
| CEDAR near Cedar Falls | MAY-JUL | 24 | 31 | 36 | 69 | 41 | 48 | 52 |
| | MAY-SEP | 30 | 38 | 43 | 73 | 48 | 56 | 59 |
| REX near Cedar Falls | MAY-JUL | 5.8 | 9.1 | 11.3 | 65 | 13.5 | 16.8 | 17.4 |
| | MAY-SEP | 8.0 | 11.7 | 14.2 | 71 | 16.7 | 20 | 20 |
| CEDAR RIVER at Cedar Falls | MAY-JUL | 0.9 | 19.4 | 32 | 68 | 45 | 63 | 47 |
| | MAY-SEP | 0.5 | 16.4 | 31 | 67 | 46 | 67 | 46 |
| SOUTH FORK TOLT near Index | MAY-JUL | 6.2 | 7.7 | 8.7 | 79 | 9.7 | 11.2 | 11.0 |
| | MAY-SEP | 7.3 | 9.2 | 10.5 | 80 | 11.8 | 13.7 | 13.2 |

CENTRAL PUGET SOUND RIVER BASINS
Reservoir Storage (1000 AF) - End of April

| Reservoir | Usable Capacity | *** Usable Storage *** This Year | Last Year | Avg |
|---|---|---|---|---|

CENTRAL PUGET SOUND RIVER BASINS
Watershed Snowpack Analysis - May 1, 2004

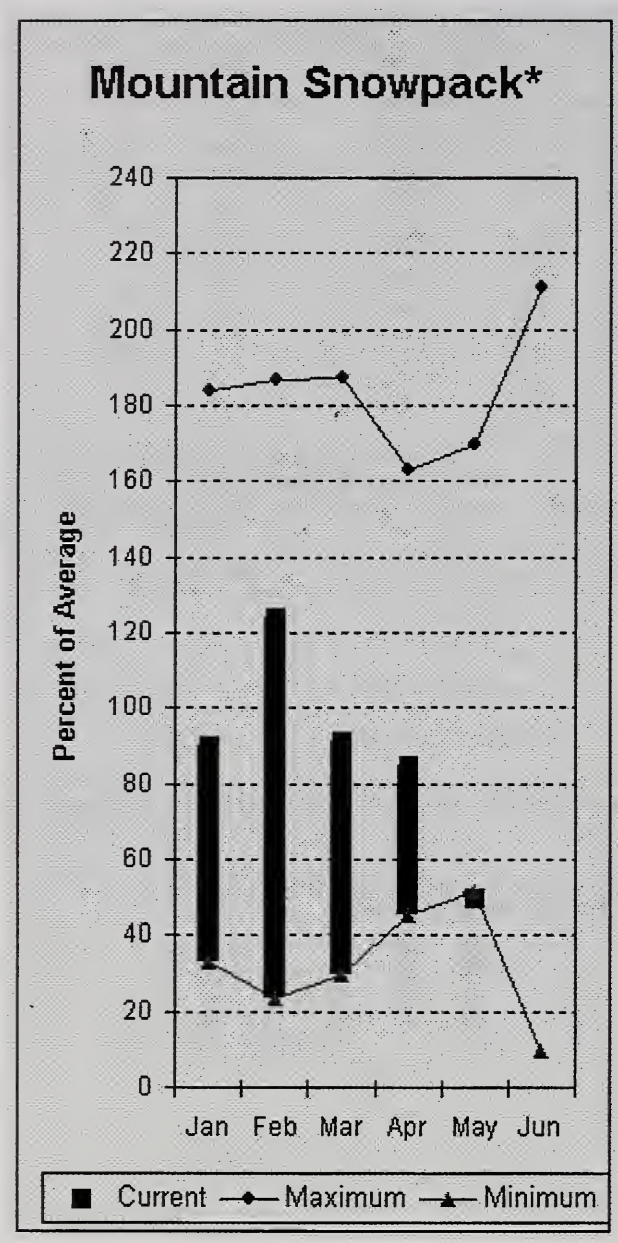
| Watershed | Number of Data Sites | This Year as % of Last Yr | Average |
|---|---|---|---|
| CEDAR RIVER | 4 | 53 | 30 |
| TOLT RIVER | 2 | 127 | 65 |
| SNOQUALMIE RIVER | 5 | 85 | 54 |
| SKYKOMISH RIVER | 3 | 87 | 58 |

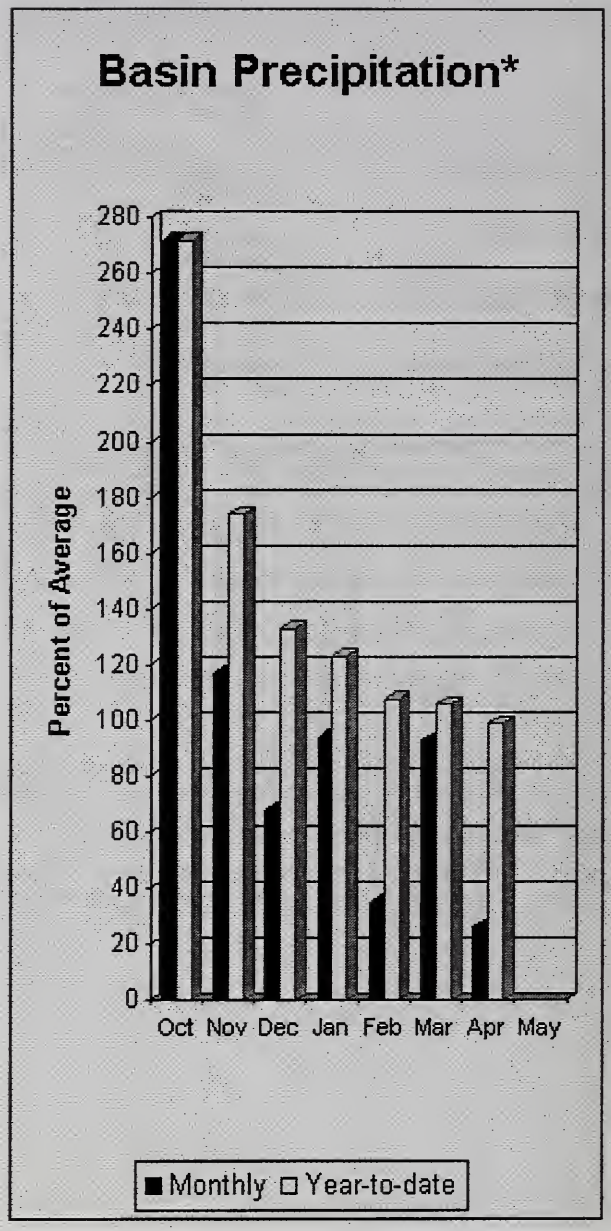
* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The average is computed for the 1971-2000 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural volume - actual volume may be affected by upstream water management.

# North Puget Sound River Basins




*Based on selected stations

Forecast for Skagit River streamflow at Newhalem is 77% of average for the spring and summer period. April streamflow in Skagit River was 98% of average. Other forecast points included Baker River at 76% and Thunder Creek at 84% of average. Basin-wide precipitation for April was 26% of average, bringing water-year-to-date to 99% of average. May 1 average snow cover in Skagit River Basin was 56%, Baker River Basin was at 50% and Nooksack River Basin was 45%. Rainy Pass SNOTEL, at 4,780 feet, had 23.6 inches of water content. Average May 1 water content is 43.2 inches at Rainy Pass. May 1 Skagit River reservoir storage was 122% of average and 65% of capacity. Average temperatures for the past 28 days were 6 degrees above normal for the basin and 1 degree above average for the water year.

*For more information contact your local Natural Resources Conservation Service office.*

## Streamflow Forecasts - May 1, 2004

| Forecast Point | Forecast Period | <<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF) | 70% (1000AF) | 50% (Most Probable) (1000AF) | 50% (Most Probable) (% AVG.) | 30% (1000AF) | 10% (1000AF) | 30-Yr Avg. (1000AF) |
|---|---|---|---|---|---|---|---|---|
| THUNDER CREEK near Newhalem | MAY-JUL | 144 | 159 | 170 | 80 | 181 | 196 | 212 |
| | MAY-SEP | 234 | 250 | 260 | 84 | 270 | 286 | 310 |
| SKAGIT at Newhalem (2) | MAY-JUL | 1045 | 1131 | 1190 | 74 | 1249 | 1335 | 1611 |
| | MAY-SEP | 1353 | 1447 | 1510 | 77 | 1573 | 1667 | 1964 |
| BAKER RIVER near Concrete | MAY-JUL | 415 | 466 | 500 | 73 | 534 | 585 | 684 |
| | MAY-SEP | 563 | 638 | 690 | 76 | 742 | 817 | 906 |

NORTH PUGET SOUND RIVER BASINS
Reservoir Storage (1000 AF) - End of April

| Reservoir | Usable Capacity | *** Usable Storage *** This Year | Last Year | Avg |
|---|---|---|---|---|
| ROSS | | NO REPORT | | |
| DIABLO RESERVOIR | | NO REPORT | | |
| GORGE RESERVOIR | | NO REPORT | | |

NORTH PUGET SOUND RIVER BASINS
Watershed Snowpack Analysis - May 1, 2004

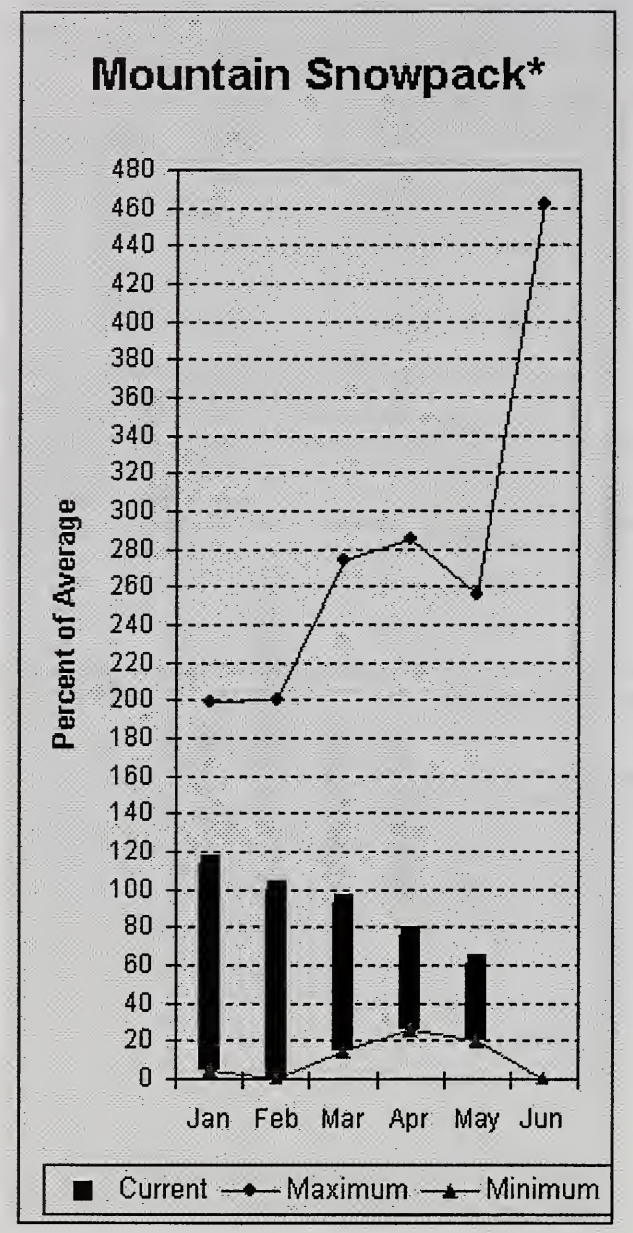
| Watershed | Number of Data Sites | This Year as % of Last Yr | Average |
|---|---|---|---|
| SKAGIT RIVER | 13 | 72 | 55 |
| BAKER RIVER | 1 | 57 | 50 |
| NOOKSACK RIVER | 1 | 97 | 45 |

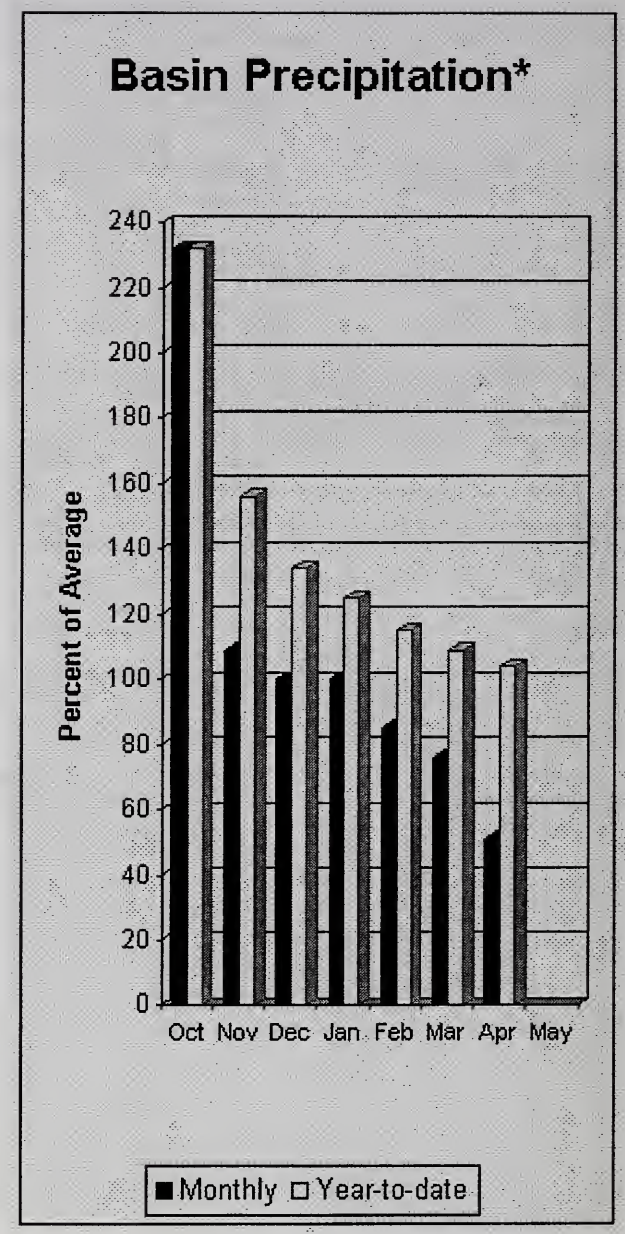
* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The average is computed for the 1971-2000 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural volume - actual volume may be affected by upstream water management.

# Olympic Peninsula River Basins




*Based on selected stations

Forecasted average runoff for streamflow in the Dungeness River and Elwha River basins is 83% and 77% respectively. Big Quilcene and Wynoochee rivers should expect runoff in that same range this summer also. April precipitation was 51% of average. Precipitation has accumulated at 104% of average for the water year. April precipitation at Quillayute was 1.78 inches. The thirty-year average for April is 7.44 inches. Olympic Peninsula snowpack averaged 61% of normal on May 1. Temperatures were 4-5 degrees above average for the past 28 days and 2 degrees above average for the water year.

*For more information contact your local Natural Resources Conservation Service office.*

## Streamflow Forecasts - May 1, 2004

| Forecast Point | Forecast Period | <<====== Drier ====== Future Conditions ======= Wetter ======>> Chance Of Exceeding * 90% (1000AF) | 70% (1000AF) | 50% (Most Probable) (1000AF) | (% AVG.) | 30% (1000AF) | 10% (1000AF) | 30-Yr Avg. (1000AF) |
|---|---|---|---|---|---|---|---|---|
| DUNGENESS near Sequim | MAY-SEP | 96 | 104 | 110 | 83 | 116 | 124 | 132 |
| | MAY-JUL | 76 | 82 | 86 | 82 | 90 | 96 | 105 |
| ELWHA near Port Angeles | MAY-SEP | 280 | 307 | 325 | 77 | 343 | 370 | 423 |
| | MAY-JUL | 224 | 246 | 260 | 77 | 274 | 296 | 338 |

OLYMPIC PENINSULA RIVER BASINS
Reservoir Storage (1000 AF) - End of April

| Reservoir | Usable Capacity | *** Usable Storage *** This Year | Last Year | Avg |
|---|---|---|---|---|

OLYMPIC PENINSULA RIVER BASINS
Watershed Snowpack Analysis - May 1, 2004

| Watershed | Number of Data Sites | This Year as % of Last Yr | Average |
|---|---|---|---|
| OLYMPIC PENINSULA | 4 | 73 | 61 |

* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The average is computed for the 1971-2000 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural volume - actual volume may be affected by upstream water management.

*Issued by*

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*Released by*

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# The Following Organizations Cooperate with the Natural Resources Conservation Service in Snow Survey Work*:

**Canada**

Ministry of Sustainable Resources
Snow Survey, River Forecast Centre, Victoria, British Columbia

**State**

Washington State Department of Ecology
Washington State Department of Natural Resources

**Federal**

Department of the Army
- Corps of Engineers

U.S. Department of Agriculture
- Forest Service

U.S. Department of Commerce
- NOAA, National Weather Service

U.S. Department of Interior
- Bonneville Power Administration
- Bureau of Reclamation
- Geological Survey
- National Park Service
- Bureau of Indian Affairs

**Local**

City of Tacoma
City of Seattle
Chelan County P.U.D.
Pacific Power and Light Company
Puget Sound Power and Light Company
Washington Water Power Company
Snohomish County P.U.D.
Colville Confederated Tribes
Spokane County
Yakama Indian Nation
Whatcom County
Pierce County

**Private**

Okanogan Irrigation District
Wenatchee Heights Irrigation District
Newman Lake Homeowners Association
Whitestone Reclamation District

*Other organizations and individuals furnish valuable information for the snow survey reports. Their cooperation is gratefully acknowledged.


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# Washington Water Supply Outlook Report

**Natural Resources Conservation Service**
**Spokane, WA**